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*Gloeckner
Chrysanthemum
Manual*

1946



Gloeckner

Better Chrysanthemums

Chrysanthemum varieties are continually being improved. Let us not be too slow to take advantage of new colors, increased vigor, productiveness and freedom from disease. Greater differences in yield and quality of flowers and stems are generally produced within varieties by cultural treatments. Our list of varieties is constantly being improved and only those varieties that have been proven are added. Each variety is reselected to improve the type and color.

If you start with healthy chrysanthemum cuttings they grow vigorously and branch normally; the roots are active and the foliage has a good color. Such plants remain relatively free from pests and will produce a good marketable crop.

By buying from the specialist you can plan your crop to exactly fit your requirements. If your order is placed at the proper time you are reasonably assured of delivery on the date you wish to plant the stock, and because of this you can eliminate at least one operation by planting directly to the bench. In this manual we have collected the latest information on chrysanthemum culture. It is just a part of the *Gloeckner* service to keep you advised. We will gladly help you plan your requirements for the coming year.

Fred C.
Gloeckner
&
Company
Incorporated

15 EAST 26th ST., NEW YORK 10, N. Y.

LExington 2-4197

At Madison Square

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TERMS OF SALE

The minimum total order that can be accepted is 250 cuttings.

Fifty of each variety is the minimum that can be supplied.

More than 50 of a variety must be in multiples of 50.

Unrooted cuttings can be supplied at \$10.00 per 1000 less list price.

Cultural Pointers

The cuttings you purchase are ready for potting or flatting, some growers even plant these rooted cuttings directly into the final location. Ordinarily they will not require shading, but if they have been several days in transit and have softened up some, or if they are planted during warm, bright weather shading with aster cloth or paper is advisable. Under no circumstances leave the covering on the plants during dull weather or at night. It is well to syringe the plants frequently until they stand up and are showing signs of growth.

The Railway Express Agency has done a marvelous job during the past several years, but occasionally they have had delays. Chrysanthemum cuttings will be injured from cold as well as being too long in transit. If the cuttings are slightly wilted, they can be immersed in water for a short period and then planted. They will react perfectly to such treatment. If the cuttings have been slightly frozen, placing them in a cool room and thawing them out gradually, or placing them in a pail of cool water to take the frost out will bring them through so that they will do just as well as cuttings that have had nothing happen to them. Of course, if stock is badly frozen, or if long delays have occurred so that the cuttings are heated, yellow or rotted, a claim should be filed at once with the express company.

CULTURED STOCK

Through the development of science your chrysanthemum cuttings have all been grown from stock that has been cultured to determine the presence or absence of the fungus that causes Verticillium Wilt or more commonly referred to as Seidewitz Disease. The culturing of cuttings is to place bits of the stem of a cutting into the gelatine-like agar medium which is used for growing fungi. If the tissue is not infected, no growth of Verticillium develops. As each cutting is cultured it is placed in sterile propagating benches spaced six inches each way. After 10 days of incubating the agar plates one can determine if the wilt organism is present in the tissue. All the cuttings that show the presence of Verticillium are discarded and only those that show a negative reading are saved and grown into stock plants. This clean stock must be grown under sterile conditions at all times as cuttings can be easily contaminated when planted into soil that has the Verticillium organism present.

Verticillium wilt undoubtedly is the worst disease of the Chrysanthemum. If you obtain cuttings propagated from cultured stock and provided you grow your plants in clean soil this disease should not be of any trouble to you.

General View of Propagating Houses



Healthy Well Rooted Cuttings



Gloeckner

Cultural Pointers

SOIL

Chrysanthemums will grow well in a wide range of soil types but a fibrous silt loam is preferred. Blue grass sod to which rotted manure has been added plus an application of super phosphate will give excellent results. A soil that does not remain too open is preferred for this crop.

Any soil that does not drain quickly and aerate freely will not grow good chrysanthemums. More chrysanthemums are ruined by lack of air at the roots than any other single cause. If the water from your hose does not disappear quickly into the soil but instead lies in pools in all the low spots on the bench, you may expect trouble in a very short time. Anticipate this condition by treating your soil so that it will not happen.

Many growers of chrysanthemums plant in old soil without sterilizing and frequently have disastrous results because this old soil is too fertile or carries disease organisms. Verticillium wilt (Seidewitz disease) is one serious disease which is present in such soils.

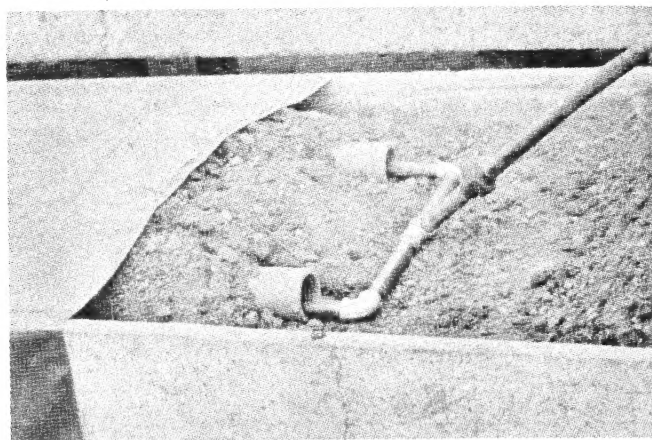
The only reliable method is to sterilize with steam so that the soil is heated to 180 to 200 degrees F. for at least one hour. If the soil is high in nitrate nitrogen we suggest you apply two inches of alfalfa or red clover hay to the soil in place of manure, before sterilizing. This coarse fiber will reduce the nitrates and also adds humus to the soil. After sterilizing leach the soil with large quantities of water to reduce the available nutrients.

Where steam sterilization is not available such as in cloth houses we suggest that you sterilize with formaldehyde liquid. Dilute one gallon of formaldehyde to 50 gallons of water and add this solution at the rate of $\frac{1}{2}$ gallon per square foot of bed area. Allow the fumes to leave the soil before planting. Soil should be well tilled before applying liquid.

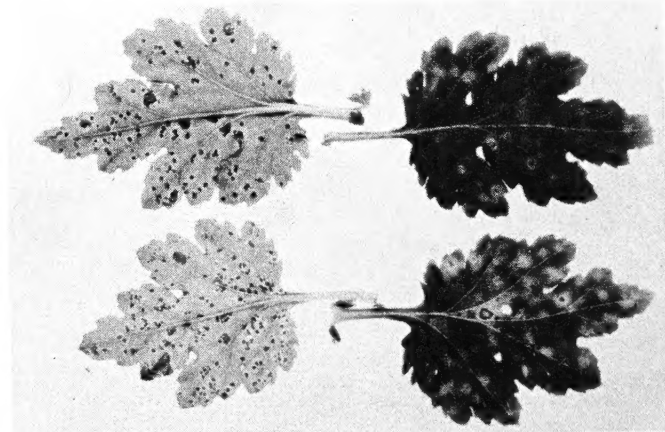
Still another chemical which has proven its worth is Larvacide. This material must be used when the greenhouses are empty to avoid injury to adjoining crops. This gas is applied in liquid form with a special applicator so that 2 to 3 c. c. are applied at 10 inch centers. The soil should be moist before applying. A good suitable covering should be placed over the treated soil to keep the gas in the soil for at least 48 hours, although a water seal applied 2 to 3 times every 24 hours will suffice. The soil temperature should be at least 60 degrees or higher. When used properly you can expect favorable control of insects, diseases and weed seeds.

Evidence shows that the soil reaction should be slightly acid pH 6.5, although in many instances a neutral medium does very well. If your soil tests slightly alkaline apply $\frac{1}{2}$ to one pound of agricultural sulfur per 100 square feet of area. However, if your soil is acid apply 3 to 5 pounds of agricultural ground limestone per 100 square feet of area.

Proper drainage and proper aeration of the soil are very vital to good growth. Many times improper drainage of the bench or bed is the reason for a poor crop. No wet spots would ever be present. Soil drainage may be improved by the addition of various materials. Any coarse organic material such as manure, alfalfa hay or clover hay applied at the rate of not to exceed one fourth the volume will separate the soil particles sufficiently to increase pore space. Heavy applications of sand to a soil have not always proven of value to a chrysanthemum crop. Aeration may also be increased by proper cultivation of the soil. Frequent scratchings are recommended during the early growth of the crop.



Buried Tile Method of Steam Sterilization



Rust on Chrysanthemum

Cultural Pointers

FERTILIZER

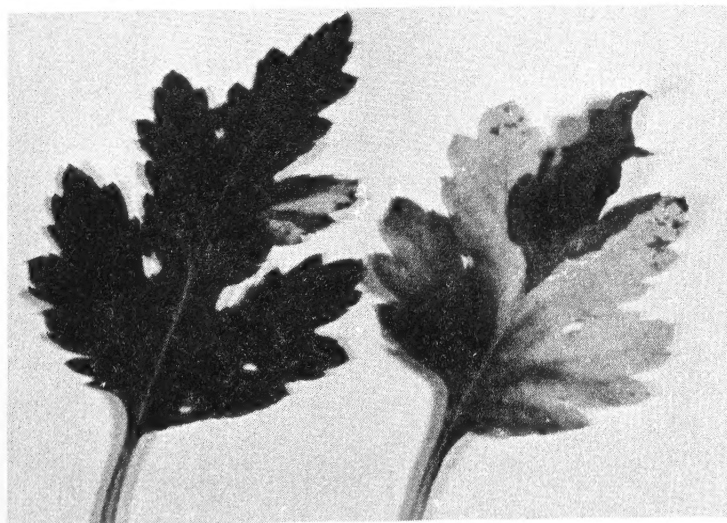
Soil structure is the key to soil fertility. The response of chrysanthemums to fertilization depends upon a favorable soil structure. It is known that plants require nutrients, water and air for growth. Good soil structure will provide proper air and water relationships. Therefore, it behooves us to give proper attention to the soil before starting the crop.

When using new soil, apply 3 to 5 lbs. of super phosphate per 100 square feet of area plus a liberal application of manure before planting. Phosphorus moves slowly within the soil mixture. It should always be added before the crop is benched so that it may be mixed thoroughly into the soil. A mulch of peat, rotted manure, alfalfa or red clover hay applied two to three weeks after planting is helpful. Six weeks after planting and every three weeks until color shows an application of ammonium sulfate at the rate of 1 lb. per 100 square feet of area or 2 lbs. of a complete fertilizer, such as Electra, is advisable. Never apply fertilizers to a dry soil. Water lightly first, then apply the proper quantity of fertilizer then water heavily. Remember that the plant is the best guide as to fertilizer requirements.

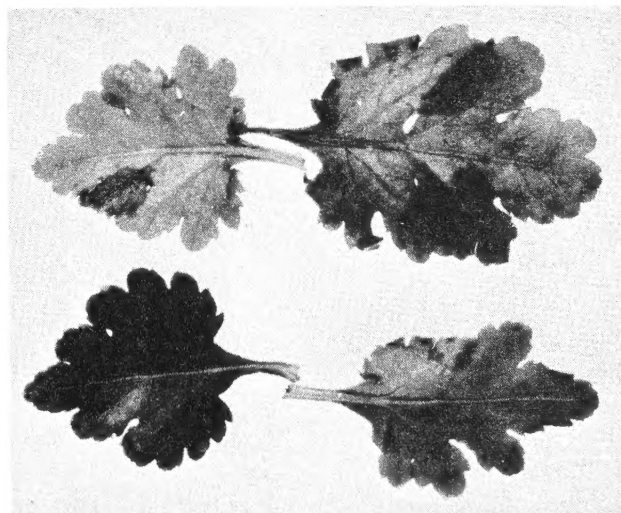
In the cooler weather and shorter days of September, omit the ammonium sulfate if the plants are growing freely and are of good color. The chrysanthemum plant assimilates more phosphorus and potassium during the fall when temperatures decline. Therefore, it is more desirable to apply a complete fertilizer shortly after the buds are visible.

When using sterilized soil the best recommendations to follow would be to analyze your soil from time to time. We have found that when the following nutrient levels are kept, good crops are the result. Nitrate nitrogen should be between 10 to 25 parts per million; phosphorus from 2 to 5 parts per million and potassium 20 to 40 parts per million.

The foregoing pertains to plants that appear and behave normally. If plants are stunted, look yellow and sick, they are probably suffering from an extremely rich soil. Many greenhouse soils are excessively rich and chrysanthemums will not thrive in such a medium. If this is the case, the remedy is leaching with water. Lots and lots of it. More water than you ever applied to a bench at once before, two or three gallons per square foot. The water that runs through the soil carries with it the excessive plant food and allows your plants to recover from their indigestion. Did you ever notice fine healthy growth on a small part of a sick-looking bed of mums, and observe that it was under a broken pane of glass that allowed the rain water to come through and leach the soil below? Such a sight is a sure indication that the soil needed leaching. In most cases this condition is the result of the foolish and indiscriminate use of fertilizers. Use them when needed, but use them judiciously. Remember fertilizers are plant food in an extremely concentrated form.



Septoria Leaf Spot



Foliar Nematode Injury

Cultural Pointers

PLANTING

Chrysanthemums grow equally as well on a raised bench or on a ground bed. The care is slightly different in that raised benches dry out more frequently during the summer and early fall months. It must be remembered that a good circulation of air is desirable, yet a direct draft is not advisable.

Under shading information we have added the date of benching and you will note that we suggest planting in May and June depending on the date you wish to shade. The reason for earlier planting is to allow the plant enough time to grow so that the stem length is sufficient when blooms are ready to cut. For normal culture it is our experience that too late a planting, such as in late July or August, does not pay. We would like to see all planting done in the month of June.

Many florists are planting rooted cuttings directly into permanent locations. This not only reduces several handlings and production costs, but also produces a better quality bloom. We fully realize that it is often an impossibility for all to treat their chrysanthemums this way. However, we have found that young, soft plants are superior to hard woody plants. We do not recommend the planting of unrooted cuttings directly into the permanent locations as you may encounter a heavy loss. However, we suggest you try rooting the unrooted cuttings directly in pots.

When planting rooted cuttings either into 2 1/4" pots or directly into the bench it has been proven that if you dip the cuttings, roots and all into a solution of Fermate 1 ounce to 4 gallons of water they will become established faster as well as protecting the young plant from septoria leaf spot. If you plant in a cloth house or directly in the open be sure to add this to your must list.

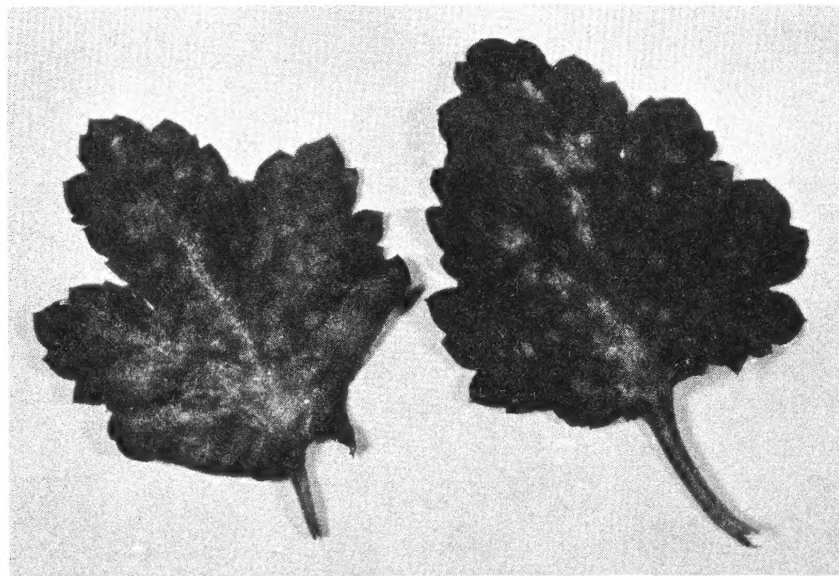
When planting rooted cuttings into their permanent position it is necessary to shade the glass or to put aster cloth directly over the young plants long enough until they are established. When shading the glass be sure that the material be applied lightly.

It is definitely advantageous to have some shade on the glass during the months of June and July when the light intensity is the highest. Cloth houses eliminate approximately one-third of the light and we all know what excellent results are obtained under this enclosure. Therefore, shading the glass lightly should likewise be beneficial. Remember not to allow the shade to remain on the glass too late in the season.

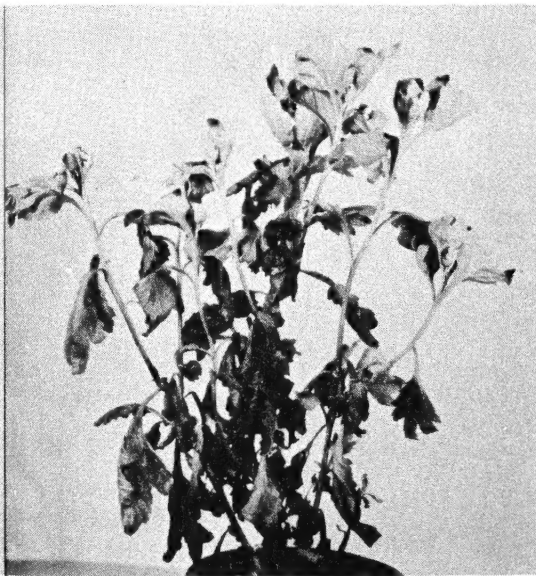
For good quality pompons we prefer to plant 7x8 inches or 8x8 inches pinched once, and thin the shoots to three per plant. Nothing is gained by planting at a closer distance. Light intensity should be high at the base of the plant for quality blooms and if planted too close we have lost the factor which promotes quality. Large flowered varieties are generally planted 8x8 inches or 8x9 inches, this also applies to disbud anemone and single varieties.

Several growers have had success by planting two plants to a hill, spacing the hills 10x10 inches, pinching once and allowing six sprays per hill. This will require a few more plants but it is claimed that when planted further apart it is easier to spray and string. A higher production per square foot is obtained.

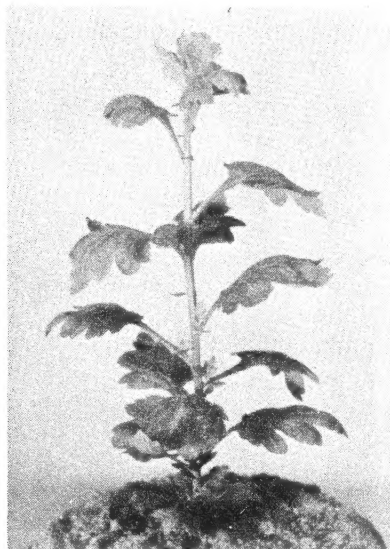
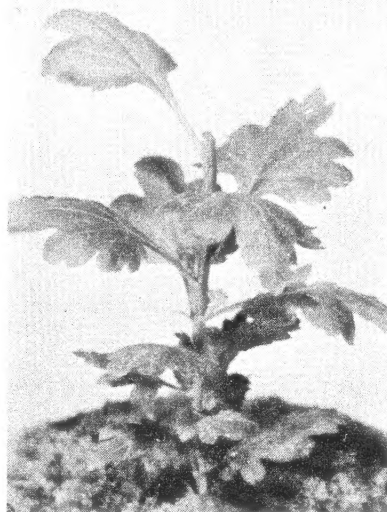
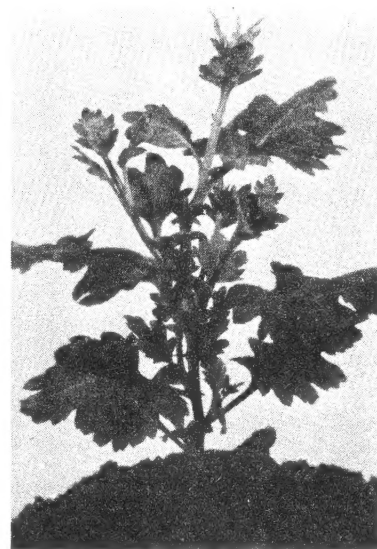
Knowledge of the varieties, date of benching as well as your method of growing will largely govern the distance of planting.



Mildew



Verticillium Wilt

Cultural Pointers*Well Established Young Plant**Top Several Inches Removed**Strong Breaks Resulting from Single Pinch***PINCHING**

Pinching not only regulates the number of stems but also influences the petallage of varieties that tend to be single; regulates the neckiness; eliminates the appearance of crown buds; and regulates the spray formation on pompons or singles.

During the past few years we have learned a great deal about pinching. The precision culture of chrysanthemum is all set-up around the "Last Pinch". To grow a quality pompon we should receive the rooted cutting some time in June and then plant into the permanent location approximately three weeks before the date listed in our list of varieties under "Last Pinch". A good spray formation is one that does not have too long a peduncle or flower stem and yet has a good cluster of blooms open at one time. To produce this type of spray one should pinch from 100 to 120 days before the normal flowering date. If we allow more time than this we will produce a spray that will set its crown bud early and the lateral shoots will grow up too long, consequently this growth will be too long to be cut as a single spray and too short when cut above the crown bud.

When pinching only remove the soft growth, never cut into the woody stems as this will not produce the type of breaks you desire. In all cases it is better to have at least eight inches of growth on the plants before pinching. It is our experience not to pinch until the plant has become well established in its permanent location.

All pinching should be finished by the early part of August as too late a pinching might encourage blindness and short stem length. We do feel that those people who grow their chrysanthemums on ground beds should pinch about a week earlier than those on raised benches.

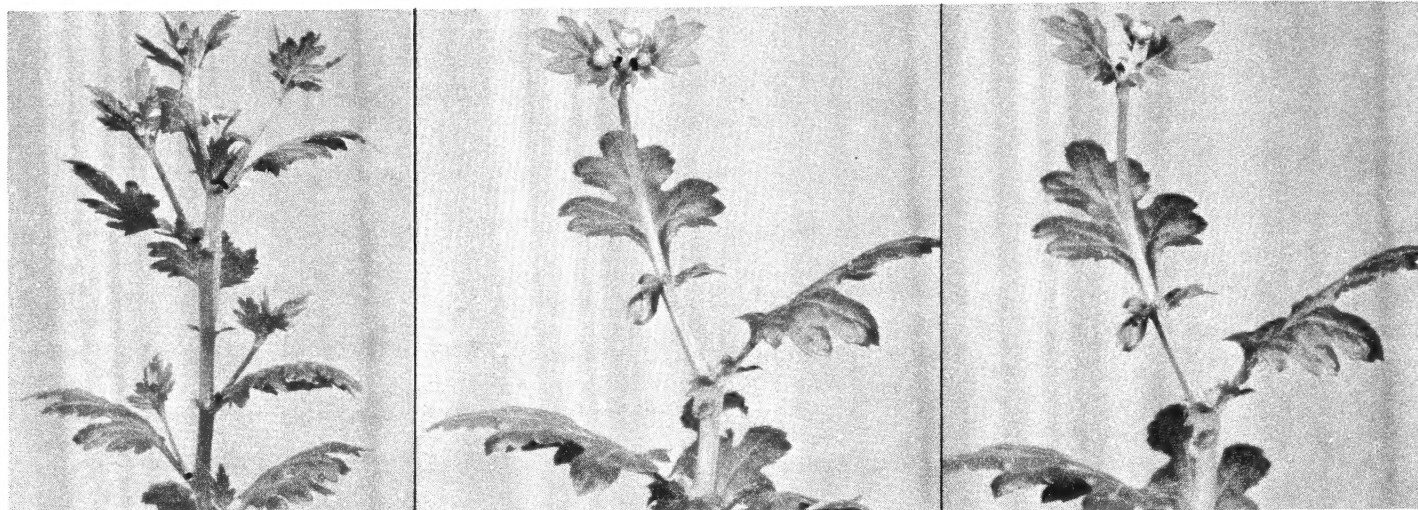
Another important factor is to remove all shoots but 3 or 4 per plant, in a few instances only 2 shoots are allowed to mature. When fewer breaks are selected the planting distance should be closer. If you prefer to have a number of smaller sprays, with fewer blooms open at one time, follow the double pinching procedure.

Standards are usually pinched once to induce breaks so that they may be grown two per plant. The strongest breaks are selected and all others removed. It is well to pinch on the date suggested in the general list. Careful observation has shown us that neckiness with some varieties is eliminated by pinching on the respective dates. Singles and anemones are usually grown 3 to 4 stems per plant.

If by chance you are delayed in planting and your plants will be too tall, it is advisable to pinch early enough before benching so that the breaks will be several inches long at time of planting. Never pinch hard plants at the same time they are planted into the bench, a heavy loss may result. Better wait until plants are established, then pinch.

The last pinching dates given after each variety will help you grow that variety to excellency. Remember that pinching is just one cultural factor and will only function when all other cultural points are carried out properly.

Cultural Pointers



Early or Crown bud surrounded by lateral buds

Late or Terminal bud surrounded by flower buds

Late or Terminal bud selected

DISBUDDING

Large flowered varieties produce side shoots in the axils of the leaves which should be removed very close to the base at regular weekly intervals.

The chrysanthemum usually produces two distinct types of flowering buds—Crown and Terminal. The first bud produced is called the crown bud and is distinguished by being surrounded by other lateral leaf buds. The second is the terminal bud and is surrounded by several flower buds. If the plant is planted especially early, a second crown bud might appear. In appearance this second crown bud is exactly the same as the first.

The procedure of "Taking Bud" depends very largely on the variety. Usually the safest rule to follow is not to select a bud of early or midseason varieties before August 25. In our list of large flowered varieties under "Select Bud" you will find the date on which to select the proper bud. If bud is selected too early a large percentage of the flowers will be crippled.

The final selection of bud should not be made when the cluster buds are too small as this will very likely cause injury to the stem near the bloom. Likewise it is not advisable to delay selecting the bud too long. Some growers like to leave an alternate bud until they are certain that nothing will happen to the one finally selected.

DISBUDDED SPRAYS

Varieties such as Yellow Doty, Goldsmith, Valencia, Little America, Freida etc., can be grown as disbudded sprays.

The procedure in growing disbudded sprays, is to wait until the crown bud forms, then remove all vegetative shoots but three. Later when terminal buds appear disbud each shoot similar to the normal disbudding of standards. When the blooms mature there are three flowers on each spray. In singles and anemones the size of the blooms will be a trifle smaller in size than when they are grown as one flower per stem. Raise three stems per plant similar to straight disbuds.

Bunch disbudded spray pompons similar to the way used in bunching the regular grown pompons.

Good Chrysanthemums result from the careful and thorough practice of the basic principles of plant growth, plus the acknowledgment of certain differences in the nature of various varieties. Growing disbudded sprays is a modification in culture which is very much worthwhile.

WATERING

The knowledge of proper watering is essential to success. Chrysanthemums produce extremely heavy foliage and a great deal of water is required at the roots, and under ordinary conditions of bench culture overwatering would be difficult. When grown in beds more care should be exercised in watering. After benching young plants grown in 2 1/4" pots, spot watering around the plants is more desirable than watering the entire area. When the plants become established the entire area should be given a thorough watering. A trowel should be used to examine the soil to determine the necessity of watering. Some soils look wet on the surface but are very dry several inches below.

When planting rooted cuttings directly into their permanent locations it is essential to water thoroughly to set the soil around the plant roots. We suggest double watering again when the soil gets on the dry side. By this time the plants are established and regular watering should be followed. Keep humidity in the house by wetting down bench and walks.

During the heat of the summer it is beneficial to syringe or spray the foliage of chrysanthemums. When syringing is started around 8:00 A.M. and continued at regular intervals, with the help of a light shade on the glass, the house temperature can be kept down as well as raise the humidity within the house. When the growth becomes thick or when the nights get chilly discontinue all syringing. Yet growers who grow quality mums tell us that they do not syringe their crop during the entire season.

TEMPERATURE

This crop will make its most growth during cool weather. During the summer, syringing overhead plus a light shade on the glass will help keep the plants cool.

It has been shown that if chrysanthemums are grown in temperatures much below 50 degrees at the time of bud initiation the plants will remain vegetative and will not form flower buds.

Blindness in this crop is usually associated with those varieties which flower the latter part of November or later. Not all varieties initiate buds at the same date. The late flowering varieties may not set bud until October. The average night temperature at that date may well be below 50 degrees. It is recommended that you keep a night temperature of 55 degrees on the late varieties until the buds are visible, after that you are safe in reducing the temperature to 48 to 50 degrees. This raise in temperature is especially important if you are using additional light to retard blooming.

CUTTING FLOWERS

Quality flowers can be easily ruined by improper cutting and marketing. Standards should have their centers well developed before cutting as half open blooms will not have good keeping qualities. Pompons are ready to cut when the majority of the buds on the spray are open. If pompons are allowed to remain on the plant too long the quality is greatly reduced. There is also a great difference in weight of pompons cut when ready as compared with those held on the plant for some time before cutting. The Chrysanthemum Society of America recommends that pompons be marketed in 9 ounce bunches, although it is our opinion that when we grow a uniform spray we will market them by number rather than by weight.

Standards are the most difficult to market. Over-crowding in the shipping boxes is the most common error. Pack so that there is ample room for each bloom, with sufficient cleating to hold the flowers in their proper positions. Pompons should be tied in neat bunches so to show off the flowers and yet not tangle with other bunches when handled.



Entire House of Marie De Petris—Grown by Frank E. Cremer

Diseases and Their Control

DISEASE	SYMPTOMS	CONTROL
FOLIAR NEMATODE (See Picture on Page 3)	Leaves first turn black or chocolate brown and leathery, then shrivel up, become brittle. Begins at base of stem and may work up to the flowers. Most troublesome out of doors.	Sodium selenate applied in liquid form to the soil at the rate of $\frac{1}{4}$ gram per square foot of bed area is very effective. Wait 2 to 4 weeks after benching before applying. (See Page 13 for further information.)
MILDEW (See Picture on Page 4)	Whitish powdery growth on upper surface of leaves.	Spray at regular weekly intervals with a good Wettable Sulfur , 1 lb. per 100 gallons of water to which a good commercial spreader has been added. Fermate , 1 ounce to 4 gallons of water is effective.
ROOT KNOT NEMATODE (Eelworm)	The nematodes or eelworms bore into the roots of the plants and cause knots or galls to develop on the root systems. As a result the plants are weak, yellowish and stunted in growth.	Soil sterilization, preferably with steam, is very effective in eliminating the root knot nematodes from the soil. Dowfume G is a good soil fumigation that will kill nematodes.
ROOT ROT	Entire plant will wilt and recover during the evening. Foliage turns yellow, entire plant will die in a very short time. A number of soil borne organisms cause the loss of the roots.	Do not plant any cuttings that have been infected with damping off. Use sterilized soil. Remove all affected plants when noticed. Do not keep the soil too moist.
RUST (See Picture on Page 2)	Chocolate brown powdery pustules on the lower surface of the leaves.	Fermate , 1 ounce to 4 gallons of water is most effective.
SEPTORIA LEAF SPOT (Leaf Blight) (See Picture on Page 3)	Distinct circular spots on the leaves. These are greyish brown in color and become brittle in the center. Affected leaves may turn yellow and die. More prevalent out of doors. Some varieties are more susceptible than others. Sea Gull is very susceptible.	When cuttings are received dunk roots and tops into Fermate (2 tablespoonsful to a gallon). Spray the plants with Fermate 1 ounce to 4 gal. water plus $\frac{1}{3}$ teaspoonful of DuPont Spreader Sticker every ten to fourteen days. Cloth house mums should be kept covered until the buds can be seen. May we recommend that you add the sticker and a little water into a jar then add the Fermate , shake thoroughly. Then dump Fermate from the jar into sprayer with proper amount of water.
VERTICILLIUM WILT (Seidewitz Disease) (See Picture on Page 4)	Margins of leaves turn yellow and eventually wilt or dry up. This begins at base of plant and works up the stems. May affect one side of a stem or plant more than the other. No distinct spots. Varieties vary in resistance to this disease.	Plant only disease free cultured cuttings in soil which has been steam sterilized.

Insects and Their Control

APHIDS, OR PLANT LICE

All aphids are true sucking insects that insert their beaks through the surface of the leaf or stem and extract the juices from within.

INJURY. The feeding of aphids causes the plants to become sickly and stunted. The leaves curl inward, and when the flower terminal is infested the blooms will be deformed. Certain varieties of chrysanthemums are more susceptible to attack than others.

CONTROL. **Nicofume Fumigation** is the preferred method of control when a considerable number of plants in a house are found to be harboring aphids. **Nicofume Liquid** at the rate of 1-400 plus a soap spreader is also very effective. **Nicotine** dust is very effective against all species of aphids. **NNOR, No-Py-Ro, and Loro** are also effective. They should be used as directed on the containers.

CHRYSANTHEMUM LEAF MINER

The larva, or maggot disfigures and weakens chrysanthemum plants by mining in the leaves. It may do considerable harm to the crop, but is easily held in check.

INJURY. The young maggots burrow in the leaf tissue, leaving the upper and lower surfaces intact. The tunnels are irregular and winding. White blotches are thus formed, which later turn brown, and the leaves may die.

CONTROL. As soon as it is noticed that any leaves are infested, they should be picked off and burned. **Nicofume** spray will kill most of the maggots before they have time to do much damage.

CHRYSANTHEMUM MIDGE

The chrysanthemum midge is one of the most serious pests with which the grower has to deal. Under optimum conditions a little over a month is required to complete the life cycle from the egg to the adult. The eggs are reddish-orange in color and are usually deposited on the tender tips of the growth. Under favorable conditions, the eggs hatch in about three days. The larva wanders about over the surface of the leaf for a day or two before finally penetrating into the leaf.

INJURY. The midge attacks all parts of the plant but prefers the tender growth. If the infestation takes place when the plants are small, they fail to grow, although if the plants are well developed when the infestation starts, the buds blight or are deformed and the plant is rendered unsalable.

CONTROL. Clean stock should be used wherever possible. Severely infested plants should be pulled up and burned. Nightly fumigation with **calcium cyanide** or **nicofume** pressure fumigators for 28 consecutive days will give good control. **Loro** 1-800 plus **DuPont Spreader Sticker** 1-1200 sprayed every three days for 3 weeks then every week has proven to be one of the best controls. **Nicotine Dust** is also useful in keeping the plants covered and is especially useful when used in combination with fumigation. **Sodium selenate** is effective when applied in liquid form $\frac{1}{4}$ gram per square foot after plants are well established.



Mite Injury



Midge Injury

Insects and Their Control

CORN EAR WORM

The corn ear worm is a green to brown, nearly smooth caterpillar, often mistaken for a cutworm when found within the buds or on the open flowers.

INJURY. It is very destructive to the opening buds, for it feeds on their petals and other parts, deforming if not entirely ruining the flowers.

CONTROL. If the attacked plants are blooming, spraying is out of the question, but thorough treatment with **sulfur-lead dust** is recommended. After they have worked their way into the buds and are found to be feeding on the open flowers, hand-picking is the only remedy. It has been reported that **D. D. T.** will control the corn ear worm.

CUTWORMS

The larva is dull-colored from one to more than two inches in length. They are most active at night, and usually spend the day coiled up just under the surface of the soil at the base of the plant. They should not be confused with the corn ear worm which cannot be controlled by poison baits.

INJURY. Cutworms obtain their food by biting out sections of the leaf, stem or bud. Various species attack different parts of the plant. The one that is most damaging climbs to the top of the stem and eats into the flower buds.

CONTROL. Those cutworms that feed on the foliage can best be controlled with **arsenate of lead** spray using $1\frac{1}{2}$ pounds to 50 gallons of water plus $\frac{1}{2}$ pound of caseinate spreader. Cutworms are also controlled with a **poison bran bait** which should be distributed very thinly over the bench several consecutive nights. Poison bait formula consists of 5 pounds of wheat bran, enough water to moisten mash, 4 ounces of Paris Green, 1 pint of molasses and one finely chopped lemon. **D. D. T.** when used properly will kill cutworms.

GREENHOUSE LEAF TYER

It gets its name from its habit of spinning light webs inclosing two or more leaves or tying together the parts of a single leaf. This caterpillar is very active, and when disturbed will wriggle off the leaf, often backwards, lowering itself on a silk-like strand.

INJURY. When first hatched, the larvae eat out shallow holes on the under side of the leaves. As they grow, they enlarge these holes but usually do not cut through to the upper surface. The result is that the leaves become skeletonized.

CONTROL. The best poison to control the larvae is **arsenate of lead**, either in the form of a dust or a spray. For liquid spray use $1\frac{1}{2}$ pounds of arsenate of lead to 50 gallons of water plus $\frac{1}{2}$ pound of caseinate spreader. Leaf tyers can also be controlled with **tartar emetic**. Add two pounds of tartar emetic, 4 pounds of sugar to 100 gallons of water. Spray the plants thoroughly so that the entire plant is covered. Pyrethrum sprays such as **EVERGREEN**, **RED ARROW SPECIAL**, and **LIBERSOL** will kill the worms and not discolor the foliage. **D. D. T.**, that powerful insecticide, will give good control either when used separately or when combined with other sprays.

Corn Ear Worm Damage



Leaf Tyer



Insects and Their Control

MEALY BUGS

Mealybugs are small, sluggish, whitish, soft bodied insects, measuring up to $\frac{1}{4}$ inch long, found in clusters on the undersides of the leaves or in the leaf axils.

INJURY. This pest sucks the juices from the stems and leaves, discoloring and deforming the foliage.

CONTROL. Regular fumigations with **calcium cyanide** will aid in keeping mealybugs in check. The combination of **Greenhouse Volck** I-50 and **Nicofume** liquid I-400 when applied when temperatures are below 90 degrees will give good results. **Loro** I-800 and **DuPont Spreader Sticker** I-1200 if sprayed when temperatures are not too high is very effective. The old method of syringing with water is still one of the easiest ways to keep the plants free of this insect.

MITES

Cyclamen mite and broad mite are often found on the same plants at the same time. Broad mite could pass through a complete generation in 4 to 5 days at 70 to 80 degrees while the Cyclamen mite will take 4 to 5 times longer.

INJURY. Infested leaves become deformed, curl from the outside inward, and wrinkle so that pockets and pit-like depressions are formed. When the infestation is severe, the mites collect about the buds, causing them to blight.

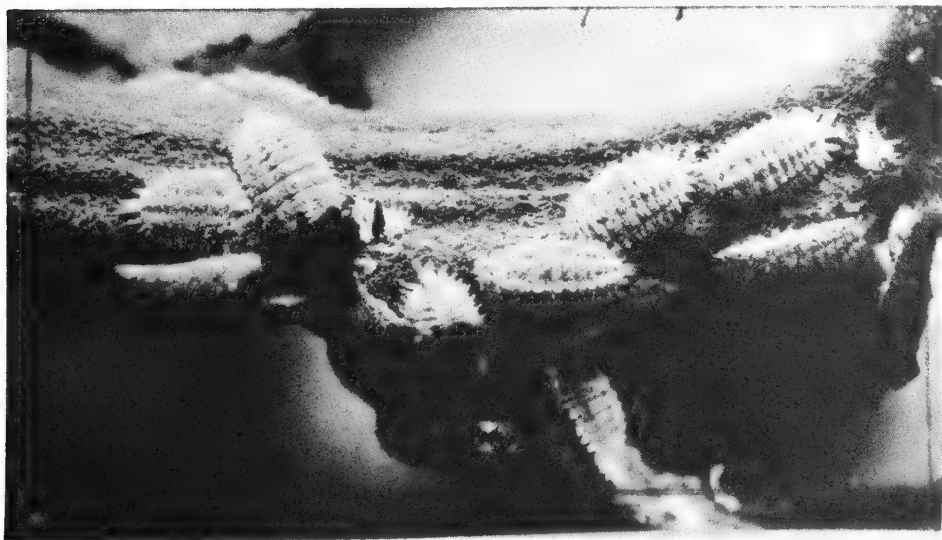
CONTROL. **Thiocide** I-200 and **DuPont Spreader Sticker** I-800 is the most effective control measure. We recommend spraying every week or ten days during the growing season. **Nicotine** liquid I-400 plus spreader or **No-Py-Ro** I-300 may also be used and will give fair control. **Sodium Selenate** is effective when applied in liquid form $\frac{1}{4}$ gram per square foot after plants are well established.

RED SPIDERS

There are several species of red spiders that attack the chrysanthemum, they vary in color through yellow, orange and red. The body is oval in outline and bears eight well-developed legs.

INJURY. Red spiders pierce the epidermis of the leaf and draw the liquid contents from the cells, causing the leaf to turn pale around the injured portion. They prefer to collect on the under surfaces of the leaves, which they cover with silken threads.

CONTROL. Sprays that contain rotenone such as **NNOR** have given the best control. Moisture is detrimental to the development of the red spiders and frequent syringing washes them and their eggs off the plants. **Loro** I-800 plus **DuPont Spreader Sticker** I-1200 has given good control but should be applied with caution as it will injure foliage when temperatures are high. **No-Py-Ro** I-300 has also been proven to effectively control this pest. **Sodium selenate** is effective when applied in liquid form $\frac{1}{4}$ gram per square foot after plants are well established.



Mealy Bugs



Symphillid Enlarged 10x

Insects and Their Control

TARNISHED PLANT BUG

The tarnished plant bug or sting fly comes into the greenhouse through open doors and ventilators in late summer or early fall and does considerable harm to this crop. Chrysanthemums growing in the open are frequently affected, varieties such as Mary L. Hall and Sea Gull are attacked to a greater extent than other varieties.

INJURY. It has sucking mouthparts and obtains its food by inserting its long, slender beak into the plant tissues and sucking up the contents of the injured cells, apparently injecting saliva, which causes the death of the tissue in the immediate vicinity. The stem is often slightly bent and the terminal growth is malformed because of this injection.

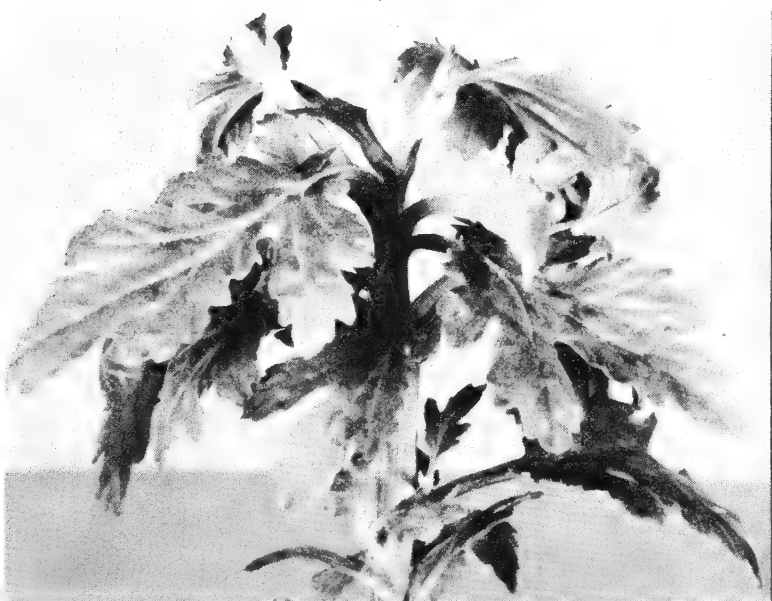
CONTROL. There is very little that can be done to combat this pest. Fumigation, using either **calcium cyanide** or **nicotine**, should be effective. All weeds and undergrowth in the vicinity of a greenhouse should be removed. It has been reported that **D. D. T.** is an effective control.

THRIPS

The chrysanthemum is usually attacked by one or more species of thrips. These small, narrow-bodied, active insects, which range in color from yellow to brown or almost black, injure both the leaves and the blossoms.

INJURY. Thrips have mouth parts that are fitted for piercing and scraping the leaf surface and for sucking the juices and other cell contents. The upper surface of the foliage is covered with whitish blotches while minute black specks appear on the lower surface. Unless a constant watch is kept on the plants, and control measures properly executed, thrips are capable of causing severe injury within a short time.

CONTROL. **Tarter emetic** at the rate of 2 pounds, to 100 gallons of water plus 4 pounds of sugar sprayed on during the late afternoon or evening will give good control. **SALP** at the rate of 1 quart of SALP, 2 pounds of sugar to 50 gallons of water has proven to be very effective during the high temperatures during the summer. Constant fumigation with **Nicofume** or **calcium cyanide** will help control this insect. **Loro** 1-800 plus **DuPont Spreader Sticker** 1-1200 will control thrip but will cause slight injury to some varieties. The latest insecticide that has proven its worth on the control of thrips is **D. D. T.** It is sure death to this insect, **Deenate 50W** used at the rate of one pound to 50 gallons of water has given good control. **D. D. T.** is available as a dust or spray; can be applied separately or combined with other spray materials. **D. D. T.** is more staple when stored in powder form.



Tarnished Plant Bug Damage



Thrip Injury

Insects and Their Control

SODIUM SELENATE

SUGGESTIONS ON METHODS OF APPLYING SODIUM SELENATE

Make a stock solution by dissolving 100 grams of sodium selenate (about 3½ ounces) in 1 gallon of water. One pound of sodium selenate will make 4½ gallons of stock solution.

For most crops the suggested dosage is ¼ gram sodium selenate per square foot (equal to 1 pound to 1800 square feet). Each quart of stock solution contains 25 grams and is therefore enough for 100 square feet of bench surface. It must be diluted with additional water to get even application and good distribution in the soil.

A convenient method of application is by means of the Hozon proportioner. This is screwed on the water faucet and the watering hose is connected to it. A small side hose dips into a pail of solution alongside. As water flows through the proportioner it creates a suction which draws up the solution and mixes it with the water in a definite ratio. In the range of 45 to 60 pounds water pressure the ratio is about 1 to 15. For treating 100 square feet of bench surface use 1 quart of stock solution with additional water to make 1½ gallons of solution in the pail. This will give about 25 gallons of dilute solution through the watering hose for the 100 square feet or about 1 gallon per 4 square feet. The material can also be applied by means of a power or barrel sprayer or liquid feed pumping system. Use one quart of stock solution in 25 gallons of water for each 100 square feet or 1 gallon per 4 square feet.

On chrysanthemums we recommend ¼ gram sodium selenate per square foot. The safest method is to make two applications at the ⅛ gram rate a week or so apart.

Sodium selenate is very effective for foliar nematodes, red spiders, midge, green and black aphids on chrysanthemums. Cornell University and Ohio State are working on the use of this material and we will keep you posted on any newer developments.

CAUTION:

Syringe off any solution which might get on the foliage.

Do not treat plants until 2 or more weeks after transplanting.

Be sure to apply the correct amount evenly.

Sodium selenate is a poison and treat it as such.

This is a new material and we recommend trying it out in a limited way before treating your entire area.

Dilution Table for Liquid Spray Materials

For measuring small amounts of liquids have a set of household measuring spoons, and a glass graduate marked in fluid ounces or a glass measuring cup marked in quarters and thirds.

1 pint = 16 fluid ounces (fl. oz.)

1 cupful = 8 fl. oz.

1 fl. oz. = 2 tablespoonfuls (tblsp.)

1 tblsp. = 3 teaspoonfuls (tsp.)

Recommended Dilution	Amount to use for the following quantities of spray					
	1 gallon	3 gallons	10 gallons	20 gallons	50 gallons	100 gallons
1 to 50	2½ fl. oz. 5 tblsp.	8 fl. oz. 1 cup	1½ pt. 3 cups	3 pint	1 gal.	2 gal.
1 to 100	1¼ fl. oz. 2½ tblsp.	4 fl. oz. ½ cup	13 fl. oz. 1½ cups	1½ pint 3 cups	2 qt.	1 gal.
1 to 200	4 tsp.	2 fl. oz. 4 tblsp.	6½ fl. oz. ¾ cup	13 fl. oz. 1½ cups	1 qt.	2 qt.
1 to 400	2 tsp.	1 fl. oz. 2 tblsp.	3¼ fl. oz. 6½ tblsp.	6½ fl. oz. ¾ cup	1 pint 2 cups	1 qt.
1 to 600	1¼ tsp.	4 tsp.	2 fl. oz. 4½ tblsp.	4½ fl. oz. ½ cup	11 fl. oz. 1⅓ cup	1⅓ pt. 2⅔ cups
1 to 800	1 tsp.	1 tblsp.	1⅔ fl. oz. 3⅓ tblsp.	3¼ fl. oz. 6½ tblsp.	8 fl. oz. 1 cup	1 pt. 2 cups
1 to 1000	¾ tsp.	2¼ tsp.	1¼ fl. oz. 2½ tblsp.	2½ fl. oz. 5 tblsp.	6½ fl. oz. ¾ cup	13 fl. oz. 1½ cups
1 to 1600	½ tsp.	1½ tsp.	¾ fl. oz. 5 tsp.	1⅔ fl. oz. 3⅓ tblsp.	4 fl. oz. ½ cup	8 fl. oz. 1 cup
1 to 2000	⅓ tsp.	1 tsp.	⅔ fl. oz. 4 tsp.	1¼ fl. oz. 2½ tblsp.	3¼ fl. oz. 6½ tblsp.	6¼ fl. oz. ¾ cup

Novelty Chrysanthemums

MARGARET MOELLER

A clear white standard that matures December 10, following December Glory and just preceding Smith's Late White. It is a very formal, tightly incurved flower and possesses excellent substance. The growth habit is clean and vigorous with beautiful foliage carried well up to the flower. The medium-sized stems are extremely rigid. Its shipping and keeping qualities are unequalled by any standard in its season. This variety responds well in either raised or ground beds. However, it is especially suited to ground bed culture, and attains its largest size and greatest commercial value when handled in this manner. By the application of electric lights, this variety can easily be delayed for Christmas and later flowering. **Price \$100.00** per 1000.



HARVESTER

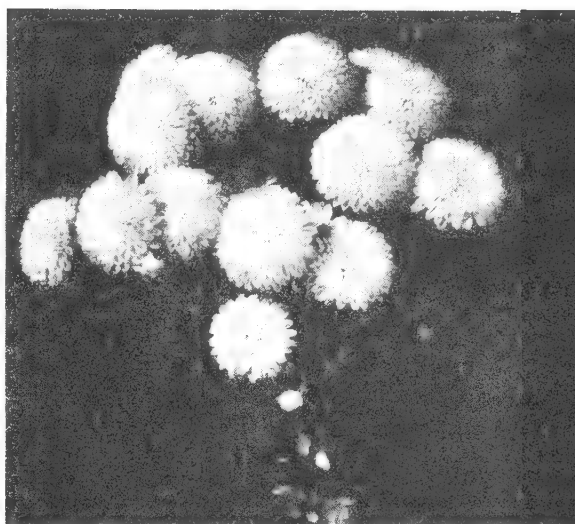
An intense canary yellow standard that blooms for Thanksgiving. The flower is of medium size, hard and durable, its bright, lustrous color; its wax-like petals and its very attractive semi-incurved form give this variety an appearance of substance and freshness that commands immediate attention. The foliage is attractive and healthy and is carried right up to the base of the flower. The stems are medium in size, strong and rigid. Harvester is a good shipper and is well liked by the retail trade. We recommend this variety to all growers as an easily grown bright yellow standard for the Thanksgiving season. **Price \$100.00** per 1000.



Novelty Chrysanthemums

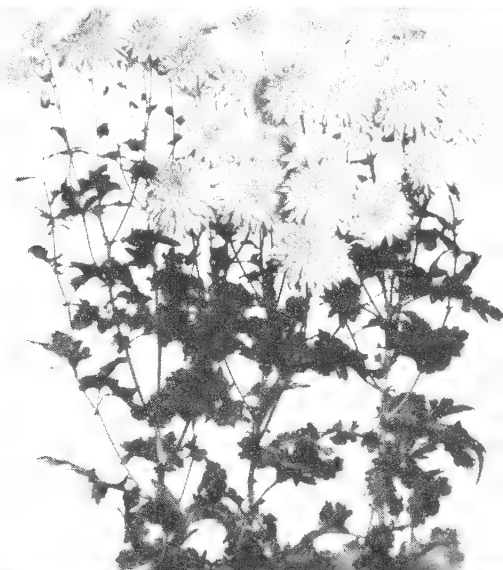
GOLDEN EMBLEM

Medium sized clear yellow pompon that blooms normally the end of November. The flowers are produced on well spaced sprays and are of close compact form with very good substance. It combines good quality with good production and disease resistance. Good results are obtained either in ground or raised benches. It will not produce blind growth so common in late varieties. Maturing the latter part of November, Golden Emblem will be found to be a welcome addition to yellow pompons in that season where quality and easy growth is combined with good production. **Price \$100.00** per 1000.



YELLOW CAMEO

A deep lemon yellow sport from Cameo. The form and growth habit are identical with the parent variety. Because of the increasing popularity of Cameo, this attractive yellow counterpart should be a very valuable variety for early December flowering, when Yellow Cordova is cut out and December Gold and Vibrant not yet ready to cut. The flower opens slowly, increasing in size, attractiveness and substance until at full maturity it is at its best. Even after full development the crop may be held for a considerable time. Because of its strong well branched spray and large sized flowers, it bunches to good advantage. Very acceptable in any market. A good producer that is easy to grow. **Price \$100.00** per 1000.



MATCHLESS

Judged by present day standards this variety by all odds seems to be the best white pompon introduced to date. Matchless possesses large solid blooms of great substance. These are well placed on strong sprays. Stems are of ample length and are clean, straight and rigid. Its growth is very free and robust with beautiful light green luxuriant foliage. The variety breaks freely from pinches and produces well under nearly all conditions, the production being very good either in ground or raised benches. Normal blooming date November 20th to 22nd, making it ideal for Thanksgiving. Matchless shades well and for this purpose should be an excellent variety to follow Bushnell and similar varieties. We can recommend Matchless as a productive and an easily grown variety that responds well to nearly all types of cultural conditions. Awarded gold medal 1943. **Price \$100.00** per 1000.



Novelty Chrysanthemums

Gloeckner



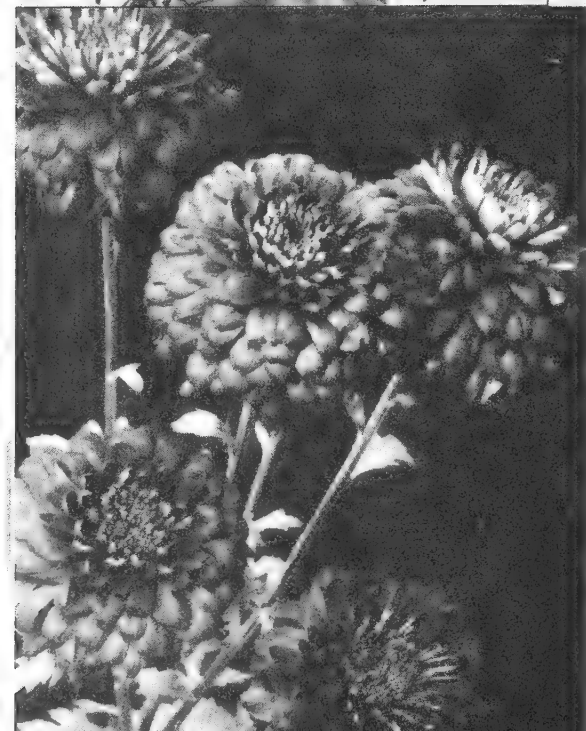
PINOCCHIO

A glistening white button for early cloth house shading. It responds beautifully to black cloth treatment and for this reason we believe it will fill the insistent demand for a small white pompon that can be easily shaded into late August and early September maturity. The flower is a beautifully formed tightly quilled button of lively and dainty appearance. It is of hard substance and has good keeping and shipping qualities. The color is a clear sparkling white. The growth is vigorous, taller than Irene and requires less time between pinching and shading to form a fuller spray of flowers. Bunches of Pinocchio appear smarter than Irene because the spray formation is more nearly single planed; and fresher because of the more uniform opening of its flowers. **Price \$100.00** per 1000.



GRANITE STATE

A small, clear white mum ideally suited for pot plant culture. The flower is of good substance, semi-incurved form and matures normally October 25. The growth habit is similar to Richard Mandel, being dwarf and compact. Granite State responds well to early shade, producing a quality flower much superior to Christina. A fine contribution to pot plant culture from the University of New Hampshire. **Price \$100.00** per 1000.



RUSTICON

An intense rust red pompon for Thanksgiving. The flower is of a very attractive, decorative form having excellent substance and a very full petallage. The growth is vigorous and persistent. It is of extremely easy culture, its dark rigid sprays and high production combine to give it a definite place in the highly competitive Thanksgiving season. It possesses more vigor than Red Rolinda, a quality of flower far superior to Legal Tender and just precedes Bronze Goldsmith in flowering. The very appealing color of Rusticon is a rich blend of crimson and rust bronze which commands immediate attention at Thanksgiving. **Price \$100.00** per 1000.

Novelty Chrysanthemums

REVELATION

All florists both wholesale and retail are conscious of the need for quality flowers that can be produced in quantity for the January market. Revelation fills this need. It is a clear white pompon that blooms as late as or later than Snow. It has never been known to go blind. Revelation makes possible the easy production of high quality white pompons during Christmas and early January without loss of production. **Price \$50.00** per 1000.

RIVIERA

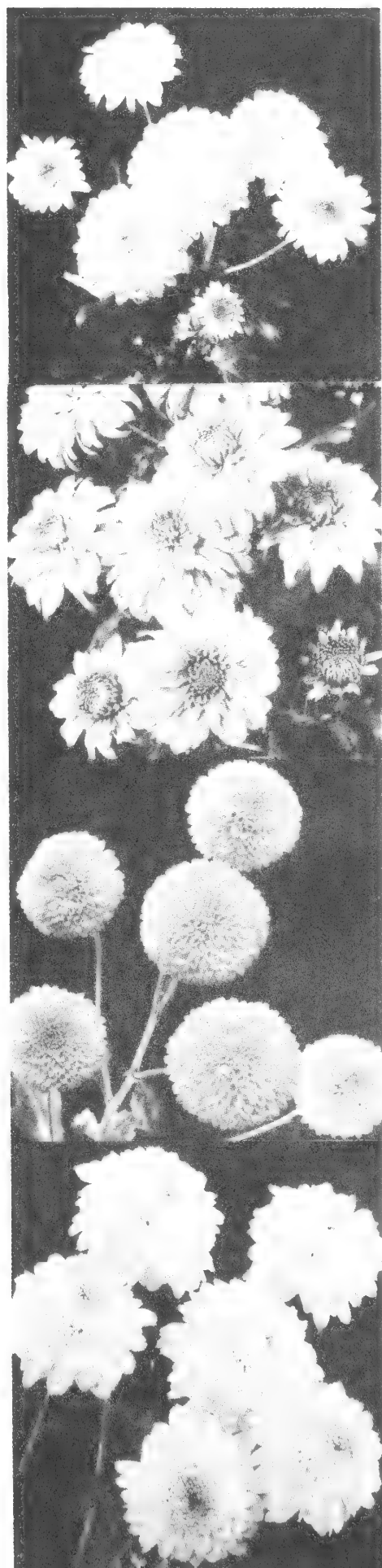
A luminous pink decorative pompon blooming normally about December 10, just nicely following Minuet. This variety finishes beautifully, maintaining its color and form much better than existing varieties that bloom at the same season. The flower is showy and of good substance. The plant is vigorous, of medium height and top production. The spray resembles that of Snow, being extremely rigid and well branched. **Price \$50.00** per 1000.

SUNNYSIDE

A persistent demand from all wholesale growers calls for a round, hard flower that will ship and handle without bruising or other damages. Sunnyside exactly fills this demand. It is a strong grower and will consistently produce a heavy crop of well branched sprays that are easy to bunch. The quality of the flower is equal or better than any existing yellow pompon. The color is a clear brilliant yellow. It matures for Thanksgiving and later. **Price \$50.00** per 1000.

VESPER

Vesper is a white pompon that blooms normally November 10. The flower is very pure in color and has unusually good substance. Free growth, easy culture, and a well branched spray ranks Vesper with the best of the early dependable varieties now in use. This unique combination of flower quality and free growth habit plus its favorable response to black cloth treatment should make this variety very popular. **Price \$50.00** per 1000.



Large Flowering Varieties

YELLOW

Name and Description	Last Pinch	Height	Select Bud	Matures	Rooted Price Per 1000
Gold Lode. Light golden yellow. Reflexed.....	July 5	Med.	Aug. 25	Oct. 1	\$37.50
Golden October. Deep lemon yellow. Incurved..	July 5	Med.	Aug. 25	Oct. 10	37.50
Celestra. Lemon yellow. Incurved.....	July 5	Med.	Ter. Bud	Oct. 15	37.50
Mrs. H. E. Kidder. Deep lemon yellow. Incurved..	July 12	Med.	Aug. 25	Oct. 20	37.50
Yellow Ambassador. Lemon yellow. Incurved....	July 12	Med.	Ter. Bud	Oct. 23	37.50
Blazing Gold. Deep golden yellow. Incurved.....	July 12	Med.	Ter. Bud	Oct. 25	37.50
Sunglow. Golden yellow. Incurved.....	July 12	Med.	Aug. 25	Oct. 25	37.50
Citronella. Light buff yellow. Incurved.....	July 12	Short	Aug. 31	Oct. 28	37.50
Saratoga. Bright golden yellow. Incurved.....	July 16	Med.	Ter. Bud	Nov. 1	37.50
Golden Glory. Golden yellow. Semi-incurved...	July 16	Short	Aug. 25	Nov. 1	37.50
Good News. Deep lemon yellow. Incurved.....	July 16	Med.	Aug. 30	Nov. 1	37.50
Yellow Turner. Light yellow. Incurved.....	July 16	Med.	Aug. 30	Nov. 5	37.50
Cardonia. Deep golden yellow. Incurved.....	July 19	Med.	Sept. 5	Nov. 10	37.50
Penrod. Golden yellow. Incurved.....	July 19	Med.	Ter. Bud	Nov. 10	37.50
Whittier. Lemon yellow. Incurved.....	July 19	Med.	Sept. 15	Nov. 13	37.50
Yellow Monument. Lemon yellow. Incurved.....	July 22	Med.	Sept. 10	Nov. 15	37.50
Honey Dew. Lemon yellow. Incurved.....	July 22	Short	Ter. Bud	Nov. 15	37.50
Yellow Mefo. Lemon yellow. Incurved.....	July 25	Med.	Sept. 20	Nov. 20	37.50
Friendly Rival. Deep chrome yellow. Incurved...	July 25	Med.	Sept. 10	Nov. 20	37.50
Reliance. Light lemon yellow. Incurved.....	July 25	Med.	Sept. 15	Nov. 20	80.00
Marie DePetrus. Deep golden yellow. Incurved...	July 25	Short	Sept. 15	Nov. 23	37.50
Harvester. Deep canary yellow. Incurved.....	July 28	Med.	Sept. 30	Nov. 25	100.00
Sun Gold. Lemon yellow. Semi-Incurved.....	July 28	Med.	Sept. 30	Nov. 25	37.50
Golden Pearson. Golden yellow. Incurved.....	July 28	Med.	Sept. 30	Nov. 25	37.50
Improved Yellow Chattanooga. Incurved.....	July 28	Med.	Sept. 20	Nov. 25	37.50
Golden Mrs. Ross. Golden yellow. Incurved....	July 31	Tall	Ter. Bud	Dec. 3	37.50
Golden Mistletoe. Pale golden yellow. Incurved.	Aug. 4	Med.	Sept. 30	Dec. 10	37.50
Meteore. Lemon yellow. Incurved.....	Aug. 4	Med.	Ter. Bud	Dec. 10	80.00
Improved Tobin's Late Yellow. Deep lemon yellow. Semi-incurved	Aug. 10	Short	Sept. 30	Dec. 15	37.50

WHITE

Smith's Early White. Incurved.....	July 1	Tall	Aug. 10	Oct. 5	37.50
Quaker Maid. White. Reflexed.....	July 5	Med.	Aug. 25	Oct. 15	37.50
Silver Sheen. Incurved.....	July 12	Med.	Aug. 30	Oct. 18	37.50
Christina. Incurved	July 12	Short	Aug. 25	Oct. 20	37.50
Ambassador. Cream white. Incurved.....	July 12	Med.	Ter. Bud	Oct. 23	37.50
Albatross. Incurved	July 16	Med.	Ter. Bud	Oct. 28	37.50
Snow White. Incurved.....	July 16	Med.	Ter. Bud	Nov. 1	37.50
Betsy Ross. Ivory white. Incurved.....	July 16	Tall	Aug. 25	Nov. 1	37.50
William Turner. White. Incurved.....	July 16	Med.	Aug. 30	Nov. 5	37.50
Indianapolis White. Incurved.....	July 19	Med.	Ter. Bud	Nov. 8	37.50
Monument. Ivory white. Incurved.....	July 22	Med.	Sept. 10	Nov. 15	37.50
Marketeer. Incurved.....	July 25	Med.	Ter. Bud	Nov. 18	37.50
Mefo. Ivory white. Incurved.....	July 25	Med.	Sept. 20	Nov. 20	37.50
White Frick. White suffused with pink. Incurved.	July 28	Short	Sept. 10	Nov. 25	37.50
Chattanooga. Incurved.....	July 28	Med.	Sept. 20	Nov. 25	37.50
December Glory. Ivory white. Incurved.....	July 31	Tall	Sept. 30	Dec. 1	37.50
December White. Incurved.....	Aug. 4	Med.	Ter. Bud	Dec. 5	80.00
Improved December Beauty. Incurved.....	Aug. 4	Med.	Oct. 1	Dec. 8	37.50
White Mistletoe. Incurved.....	Aug. 4	Med.	Sept. 30	Dec. 10	37.50
Margaret Moeller. Incurved.....	Aug. 4	Med.	Sept. 30	Dec. 10	100.00
Smith's Late White. Ivory white. Semi-incurved.	Aug. 10	Short	Sept. 30	Dec. 15	37.50

FOR SHADING INFORMATION AND DELAYED FLOWERING SEE PAGES 28-32.

Large Flowering Varieties

BRONZE

Name and Description	Last Pinch	Height	Select Bud	Matures	Rooted Price Per 1000
Indianola. Pale reddish bronze. Incurved.....	July 5	Med.	Aug. 25	Oct. 10	\$37.50
Hilda Bergen. Dark reddish bronze. Incurved...	July 12	Med.	Aug. 25	Oct. 25	37.50
Cambria. Golden bronze. Incurved.....	July 12	Med.	Ter. Bud	Oct. 25	37.50
Alameda. Reddish bronze. Incurved.....	July 12	Short	Ter. Bud	Oct. 25	37.50
Glitters. Deep reddish orange. Reflexed.....	July 12	Med.	Ter. Bud	Oct. 28	37.50
Apricot Queen. Orange bronze. Incurved.....	July 16	Short	Sept. 5	Nov. 1	37.50
Detroit News. Reddish bronze. Incurved.....	July 16	Med.	Aug. 30	Nov. 1	37.50
Ivanhoe. Reddish bronze. Incurved.....	July 16	Med.	Aug. 30	Nov. 1	100.00
Indianapolis Bronze. Buff bronze. Incurved.....	July 19	Med.	Ter. Bud	Nov. 8	37.50
Bronze Orchid Queen. Apricot buff. Incurved...	July 19	Med.	Ter. Bud	Nov. 12	37.50
Mrs. A. J. Stahelin. Reddish bronze. Incurved...	July 22	Med.	Ter. Bud	Nov. 15	37.50
Gladys Pearson. Light buff bronze. Incurved....	July 28	Med.	Sept. 30	Nov. 25	37.50
Oak Leaf. Reddish bronze. Incurved.....	July 28	Med.	Sept. 30	Nov. 25	37.50
Bronze Frick. Light bronze. Incurved.....	July 28	Short	Sept. 10	Nov. 25	37.50
Bronze Mistletoe. Buff bronze. Incurved.....	Aug. 4	Med.	Sept. 30	Dec. 10	37.50

PINK

Early October. Light lavender. Semi-incurved...	July 5	Med.	Ter. Bud	Oct. 10	80.00
Pink Chief. Lavender. Incurved.....	July 5	Tall	Ter. Bud	Oct. 15	37.50
Justrite. Light rose pink. Incurved.....	July 5	Short	Ter. Bud	Oct. 15	37.50
October Rose. Light lavender. Incurved.....	July 5	Med.	Sept. 5	Oct. 15	37.50
Rose Chochard. Light lavender. Incurved.....	July 12	Short	Aug. 15	Oct. 20	37.50
Major Ed. Bowes. Deep lavender. Incurved.....	July 12	Med.	Aug. 30	Oct. 20	37.50
Rosabella. Rose pink. Incurved.....	July 12	Med.	Ter. Bud	Oct. 25	37.50
Rosy Morn. Deep pink. Incurved.....	July 12	Med.	Ter. Bud	Oct. 25	80.00
Pink Turner. (Mrs. Leslie Davis). Lavender. Incurv.	July 16	Med.	Aug. 30	Nov. 5	37.50
J. W. Prince. Rose pink. Incurved.....	July 16	Short	Aug. 30	Nov. 5	37.50
Indianapolis Pink. Deep lavender. Incurved.....	July 19	Med.	Ter. Bud	Nov. 8	37.50
Orchid Queen. Orchid pink. Incurved.....	July 19	Med.	Ter. Bud	Nov. 12	37.50
Aristocrat. Deep orchid pink. Incurved.....	July 19	Med.	Ter. Bud	Nov. 20	80.00
Thanksgiving Pink. Amaranth. Reflexed.....	July 25	Short	Sept. 15	Nov. 23	37.50
Peter John. Deep rose pink. Reflexed.....	July 25	Short	Sept. 15	Nov. 23	37.50
Helen Frick. Rose pink. Incurved.....	July 28	Short	Sept. 10	Nov. 25	37.50
Edwin Seidewitz. Lavender. Incurved.....	July 30	Tall	Sept. 15	Nov. 30	37.50
Pink Mistletoe. Lavender. Incurved.....	Aug. 4	Med.	Sept. 30	Dec. 10	37.50

RED

Anaconda. Deep coppery red with golden bronze reverse. Incurved.....	July 19	Med.	Sept. 15	Nov. 10	50.00
Mrs. David F. Roy. Crimson with deep buff reverse. Incurved.....	July 22	Short	Sept. 15	Nov. 10	37.50
Garnet King. Dark red. Reflexed.....	July 25	Med.	Sept. 20	Nov. 18	37.50
Harvard. Deep red. Reflexed.....	July 30	Med.	Sept. 30	Nov. 30	37.50
Mohawk Chief. Deep red. Reflexed.....	July 30	Med.	Sept. 30	Nov. 30	37.50

Hardy or Garden Varieties

The following varieties have been selected from a large list and have proven themselves best suited for cut flowers as well as general outdoor display. Many florists have grown these garden varieties in the cloth house and greenhouses with excellent results. No black cloth treatment is necessary for September and early October flowering.

There is also an increasing demand from the retail customers for small plants in the spring as well as field clumps in early fall. Might we suggest planting some of these garden varieties around your greenhouse? This will give an array of color in the fall when the annuals usually are finished blooming.

YELLOW

Name and Description	Size & Type	Matures	Rooted Price per 1000
Barbara Cumming. (Yellow Normandie). Buff yellow...	Int. Dec.	Sept. 15	\$37.50
Early Yellow. Light golden yellow.....	S. Pom.	Sept. 15	37.50
Morning Star. Primrose yellow.....	Int. Dec.	Sept. 20	100.00
Pomponette. Light buff yellow.....	Int. Pom.	Sept. 20	37.50
Wolverine. Light yellow.....	Int. Dec.	Sept. 25	37.50
King Midas. Light lemon yellow.....	Int. Dec.	Sept. 30	37.50
Judith Anderson. Golden yellow.....	S. Pom.	Oct. 15	37.50
Yellow Irene. Light lemon yellow. Sport from Irene....	S. Pom.	Oct. 18	37.50
Rodell Improved. Light lemon yellow.....	Int. Pom.	Oct. 20	37.50

WHITE

Silver Moon. Cream white.....	Int. Sing.	Sept. 15	37.50
Normandie. White suffused with pink.....	Int. Dec.	Sept. 20	37.50
Jean Cumming. Ivory white.....	Int. Dec.	Sept. 20	37.50
Avalanche. White.....	Int. Dec.	Oct. 5	60.00
Uvalda. Cream white.....	Int. Pom.	Oct. 10	37.50
White Jewell. White tinged with light lavender.....	S. Pom.	Oct. 15	37.50
Silver Ball	L. Pom.	Oct. 15	37.50
Irene	S. Pom.	Oct. 18	37.50

BRONZE and RED

Early Bronze. Orange bronze.....	S. Pom.	Sept. 15	37.50
Burgundy. Wine red.....	Int. Dec.	Oct. 5	37.50
Ruby Pompon. Ruby crimson.....	Int. Pom.	Oct. 5	80.00
Caliph. Deep red.....	Int. Dec.	Oct. 8	37.50
Red Velvet. Velvety crimson.....	Int. Dec.	Oct. 8	80.00
Ruth Cumming. Reddish bronze.....	Int. Dec.	Oct. 8	37.50
Aviator. Coppery red.....	Int. Dec.	Oct. 10	100.00
Mandarin. Coral salmon.....	Int. Dec.	Oct. 10	37.50
Indian Summer. Orange bronze.....	Int. Dec.	Oct. 15	37.50
Clara Jameson. Dark reddish bronze.....	S. Pom.	Oct. 15	37.50

PINK

Early Wonder. Lavender.....	Int. Dec.	Sept. 25	37.50
Morning Glow. Mauve pink.....	S. Dec.	Sept. 25	100.00
Jean Treadway. Light rose pink with dark center.....	Int. Dec.	Oct. 1	37.50
Mrs. du Pont. Peach pink shading to rosy salmon.....	Int. Dec.	Oct. 5	60.00
Rose Glow. Raspberry changing to opalescent rose...	S. Dec.	Oct. 5	37.50
Lavender Lady. Lavender.....	Int. Dec.	Oct. 8	60.00
Symphony. Mauve coppery pink and lavender.....	Int. Dec.	Oct. 12	37.50
Allegro. Shrimp pink.....	Int. Dec.	Oct. 15	100.00
Jewell. Lavender.....	S. Pom.	Oct. 15	37.50
Dark Pink Jewell. Deep lavender. Sport from Jewell....	S. Pom.	Oct. 15	37.50

SEE PAGE 36 FOR CLOTH HOUSE CONSTRUCTION INFORMATION.

Chrysanthemum Cuttings

Pompon and Decorative Varieties

The term pompon is applied to those varieties which are of the true rounded type, and those very nearly approaching this type.

Decorative varieties are those which are a distinct departure from the rounded type. Their flowers are less compact, partly reflexed and display more of the color of the inner side of the petals.

Size of flower is indicated by S—small; Int.—intermediate; L—large.

YELLOW

Name and Description	Pinch	Height	Size & Type	Matures	Rooted Price per 1000
Yellow Irene. Light lemon yellow. Sport from Irene	July 8	Short	S. Pom.	Oct. 18	\$37.50
Rodell Improved. Light lemon yellow.....	July 8	Short	Int. Pom.	Oct. 20	37.50
Yellow Hammer. Golden yellow.....	July 8	Med.	Int. Pom.	Oct. 20	37.50
Golden Spray. Deep lemon yellow.....	July 12	Med.	Int. Pom.	Oct. 23	37.50
*Golden Herald. Deep golden yellow.....	July 12	Med.	L. Dec.	Oct. 25	37.50
Yellow Dot. Yellow with bronze center.....	July 12	Med.	Int. Pom.	Oct. 25	37.50
Yellow Arcadia. Pernet yellow.....	July 16	Med.	Int. Pom.	Oct. 28	37.50
Mary Lennon Hall. (Vera Victoria). Deep lemon yellow	July 16	Tall	Int. Pom.	Nov. 1	37.50
Yellow Sea Gull. Pale lemon yellow.....	July 16	Tall	Int. Pom.	Nov. 1	37.50
Barcarole. Golden yellow.....	July 19	Med.	Int. Pom.	Nov. 5	100.00
Nuggets. Light lemon yellow.....	July 19	Short	S. Pom.	Nov. 5	37.50
Yellow Bushnell. Pernet yellow. Sport from Rev. Bushnell	July 19	Tall	Int. Pom.	Nov. 8	37.50
Derigold. Deep golden yellow.....	July 19	Med.	Int. Pom.	Nov. 10	37.50
Pixie. Deep golden yellow.....	July 19	Med.	S. Pom.	Nov. 10	50.00
Yellow New York. Deep lemon yellow.....	July 19	Med.	S. Pom.	Nov. 13	37.50
Cocquette. Clear golden yellow.....	July 22	Med.	S. Pom.	Nov. 15	80.00
Princeton. Orange yellow.....	July 22	Med.	Int. Dec.	Nov. 15	37.50
Yellow Fellow. Deep lemon yellow.....	July 22	Med.	Int. Dec.	Nov. 15	37.50
Golden Surprise. Sulphur yellow, shading to golden yellow.....	July 25	Med.	Int. Pom.	Nov. 18	50.00
Golden Emblem. Golden yellow.....	July 25	Med.	Int. Pom.	Nov. 20	100.00
Hasegawa Gold. Light golden yellow.....	July 25	Med.	Int. Pom.	Nov. 23	37.50
Sunnyside. Golden yellow.....	July 28	Med.	Int. Pom.	Nov. 25	50.00
*Goldsmith. Golden yellow.....	July 28	Med.	Int. Dec.	Nov. 25	37.50
Christmas Gold. Deep golden yellow.....	July 28	Med.	S. Pom.	Nov. 28	37.50
Yellow Cordova. Lemon yellow. Sport from Cordova	July 28	Med.	Int. Dec.	Nov. 30	37.50
Gold Coin. (Unalga). Deep lemon yellow.....	July 28	Med.	Int. Pom.	Dec. 1	37.50
Golden Modena. Deep lemon yellow. Sport from Modena	July 31	Med.	Int. Pom.	Dec. 5	37.50
Yellow Cameo. Deep lemon yellow.....	July 31	Med.	Int. Pom.	Dec. 10	100.00
December Gold. Deep golden yellow.....	Aug. 2	Med.	Int. Dec.	Dec. 15	37.50
Christmas Cheer. Buff yellow.....	Aug. 2	Med.	Int. Pom.	Dec. 15	37.50
Spun Gold. Deep lemon yellow.....	Aug. 2	Med.	Int. Dec.	Dec. 15	37.50
Vibrant. Deep lemon yellow.....	Aug. 4	Med.	Int. Dec.	Dec. 20	37.50
Winterset. Lemon yellow.....	Aug. 6	Med.	Int. Pom.	Dec. 25	37.50
Ivory Snow. Ivory yellow.....	Aug. 10	Med.	Int. Pom.	Dec. 30	80.00
Yellow Snow. Deep lemon yellow.....	Aug. 10	Med.	Int. Pom.	Dec. 30	37.50

* Responds to disbudding.

SEE PAGES 1 TO 7 FOR CULTURAL POINTERS. FOR SINGLE AND ANEMONE VARIETIES SEE PAGES 24 AND 25

Pompon and Decorative Varieties

WHITE

Name and Description	Last Pinch	Height	Size & Type	Matures	Rooted Price Per 1000
Uvalda, Cream white.....	July 8	Med.	Int. Pom.	Oct. 10	\$37.50
White Jewell. White tinged with light lavender	July 8	Short	S. Pom.	Oct. 15	37.50
*Silver Ball	July 8	Med.	L. Pom.	Oct. 15	37.50
Irene	July 8	Short	S. Pom.	Oct. 18	37.50
Minong	July 12	Med.	S. Pom.	Oct. 20	37.50
Pinocchio	July 12	Med.	S. Pom.	Oct. 25	100.00
Arcadia	July 16	Med.	Int. Pom.	Oct. 28	37.50
Sea Gull. Cream white	July 16	Tall	Int. Pom.	Nov. 1	37.50
*White Doty. Ivory white.....	July 16	Tall	L. Pom.	Nov. 1	37.50
Nancy Crain	July 16	Med.	S. Pom.	Nov. 5	37.50
Crystal Jewell	July 19	Tall	S. Pom.	Nov. 8	37.50
Rev. Horace Bushnell. Cream white.....	July 19	Tall	Int. Pom.	Nov. 8	37.50
Vesper	July 19	Tall	Int. Pom.	Nov. 10	50.00
Chicago Pearl. Ivory white	July 22	Med.	Int. Pom.	Nov. 15	37.50
Matchless	July 25	Med.	Int. Pom.	Nov. 20	100.00
Pearl	July 25	Tall	Int. Pom.	Nov. 20	37.50
Seafoam	July 25	Med.	Int. Pom.	Nov. 20	50.00
Priscilla	July 28	Tall	L. Pom.	Nov. 28	80.00
*White Yuletide	July 28	Short	Int. Pom.	Nov. 28	37.50
Cordova. Cream white	July 28	Med.	Int. Dec.	Nov. 30	37.50
Royal Queen	July 31	Med.	Int. Pom.	Dec. 5	37.50
Cameo. Ivory white.....	July 31	Med.	Int. Pom.	Dec. 5	37.50
Silver Star. Ivory white.....	July 31	Tall	Int. Pom.	Dec. 10	37.50
December Glory. Ivory white.....	Aug 6	Med.	Int. Dec.	Dec. 15	37.50
Snow. Ivory white	Aug 10	Med.	Int. Pom.	Dec. 30	37.50
Revelation	Aug 10	Med.	Int. Pom.	Jan. 5	50.00

BRONZE

Clara Jameson. Dark reddish bronze.....	July 8	Med.	S. Pom.	Oct. 15	37.50
Thorina. Reddish bronze	July 12	Med.	Int. Pom.	Oct. 20	37.50
Roman Bronze. Bronze suffused with pink	July 12	Tall	Int. Pom.	Oct. 20	37.50
Adelaide. Dark reddish bronze	July 12	Med.	S. Pom.	Oct. 23	37.50
*Jemima. Dark reddish bronze	July 12	Med.	Int. Pom.	Oct. 23	37.50
Fire Bird. Dark reddish bronze	July 12	Med.	Int. Dec.	Oct. 25	37.50
Elizabeth Peterson. Light orange bronze	July 16	Med.	Int. Pom.	Nov. 3	37.50
Bronze Bulkeley. Bronze suffused with pink	July 19	Tall	Int. Pom.	Nov. 8	37.50
Cassandra. Orange bronze	July 22	Med.	Int. Pom.	Nov. 10	50.00
New York. Reddish bronze	July 22	Med.	S. Pom.	Nov. 13	37.50
Trianon. Crimson bronze	July 22	Med.	Int. Pom.	Nov. 13	80.00
*Bronze Masterpiece. Apricot bronze	July 22	Med.	Int. Pom.	Nov. 15	37.50
Fez. Deep reddish bronze	July 22	Med.	S. Pom.	Nov. 15	37.50
Gold Imperial. Golden orange	July 22	Tall	Int. Dec.	Nov. 15	50.00
Catherine. Light reddish bronze	July 25	Med.	Int. Dec.	Nov. 20	37.50
Legal Tender. Bronze and gold	July 25	Med.	Int. Dec.	Nov. 20	37.50
*Bronze Goldsmith. Mars orange	July 28	Med.	Int. Dec.	Nov. 25	80.00
Apricon. Apricot yellow	July 28	Med.	Int. Pom.	Nov. 25	37.50
Dorothy Turner. Deep reddish bronze	July 28	Med.	Int. Pom.	Nov. 25	37.50
Argo. Orange bronze	July 28	Short	Int. Pom.	Nov. 28	80.00
Glow. Orange, reddish orange at center	July 28	Med.	Int. Pom.	Nov. 30	37.50
Wildfire. Orange rust	July 31	Med.	Int. Pom.	Dec. 3	37.50

* Responds to disbudding.

FOR SINGLE AND ANEMONE VARIETIES SEE PAGES 24 and 25.

Pompon and Decorative Varieties

PINK

Name and Description	Last Pinch	Height	Type	Matures	Rooted Price Per 1000
Jewell. Lavender.....	July 8	Short	S. Pom.	Oct. 15	\$37.50
Dark Pink Jewell. Deep lavender.....	July 8	Short	S. Pom.	Oct. 15	37.50
Pink Pearl. Rose pink.....	July 8	Med.	S. Pom.	Oct. 20	37.50
Capt. Cook. Deep rose pink.....	July 12	Tall	Int. Pom.	Oct. 20	37.50
Jessie. (Madeline). Light lavender.....	July 12	Med.	Int. Pom.	Oct. 25	37.50
Pink Dot. White with pink center.....	July 12	Med.	Int. Pom.	Oct. 25	37.50
*Lillian Doty. Light rose pink.....	July 16	Med.	L. Pom.	Nov. 1	37.50
*Rose Charm. Lavender.....	July 16	Med.	L. Pom.	Nov. 1	37.50
Dark Pink Bulkeley. Dark rose pink.....	July 19	Tall	Int. Pom.	Nov. 8	37.50
Mrs. Morgan G. Bulkeley. Light rose pink suffused with orchid lavender.....	July 19	Tall	Int. Pom.	Nov. 8	37.50
*Thyra. Lavender.....	July 19	Med.	L. Pom.	Nov. 10	37.50
*Masterpiece. Tourmaline pink.....	July 22	Med.	Int. Pom.	Nov. 15	37.50
Minuet. Mauve to rose pink.....	July 28	Med.	Int. Pom.	Nov. 25	80.00
Usona. Lavender.....	July 28	Med.	Int. Pom.	Nov. 25	37.50
Prosperity. Deep lavender.....	Aug. 2	Med.	Int. Dec.	Dec. 10	37.50
Riviera. Luminous pink.....	Aug. 2	Med.	Int. Dec.	Dec. 10	50.00
Pink Treasure Island. Light lavender.....	Aug. 6	Med.	Int. Dec.	Dec. 20	37.50

RED

Natoma. Flame scarlet.....	July 12	Short	Int. Dec.	Oct. 25	37.50
Robin Hood. Dark red.....	July 19	Med.	S. Pom.	Nov. 5	37.50
Navaho. Dark red.....	July 19	Med.	Int. Dec.	Nov. 5	50.00
Red Princeton. Brazil red.....	July 22	Med.	Int. Dec.	Nov. 15	37.50
Mrs. Mary Hooker. Deep red.....	July 22	Tall	L. Dec.	Nov. 15	37.50
Rusticon. Rust red.....	July 25	Med.	Int. Pom.	Nov. 20	100.00
Royal Crimson. Dark crimson.....	July 31	Med.	L. Dec.	Dec. 1	37.50
Cavalcade. Mandarin red. Golden bronze reverse	Aug. 2	Med.	Int. Pom.	Dec. 10	37.50

* Responds to disbudding.

Insecticides and Fungicides

Arsenate of Lead.....	4 lbs. \$1.00 — 24 lbs. \$4.50
Calcium Cyanide G. Fumigant.	
	5 lbs. \$3.00 — 25 lbs. \$10.00
Deenate 50 W (DDT).	
Du Pont Spreader Sticker. Gal.	\$4.95 — 5 gal. \$23.00
Evergreen.	Gal. \$12.60
Fermate.	3 lbs. \$3.00 — 25 lbs. \$18.75
Libersol.	Gal. \$10.00
Loro.	Gal. \$10.50 — 5 Gal. \$45.00
Nicofume Liquid.	Gal. \$11.25 — 5 gal. \$45.75

Nicofume Pressure Fumigators.		
1/2 lb. cans (12 cans)		\$4.45
1 lb. cans (12 cans)		7.40
NNOR.	Gal.	\$10.00
No-Py-Ro.	Gal. \$10.50 — 5 gal.	\$45.00
Red Arrow Special.	Gal.	\$12.00
SALP.	Gal.	\$3.20
Sodium Selenate.	Per lb.	\$4.00
Tarter Emetic.	10 lbs. \$8.50 — 100 lbs.	\$75.00
Tobacco Dust.	100 lbs. \$3.50 — Ton	\$65.00
Thiocide.	Gal.	\$6.00

Single-Daisy Type Varieties

YELLOW

Name and Description	Last Pinch	Height	Size	Matures	Rooted Price Per 1000
Yellow Daisy. Deep lemon yellow	July 16	Med.	Int.	Nov. 1	\$37.50
Lodestar. Golden yellow	July 28	Med.	Int.	Nov. 25	80.00
*Golden Jane. Brilliant golden yellow	July 28	Med.	Large	Nov. 30	50.00

WHITE

*White Mensa. Ivory white	July 22	Med.	Int.	Nov. 10	37.50
Yukon	Aug. 7	Tall	Int.	Dec. 10	37.50

BRONZE

October Bronze. Light bronze	July 16	Med.	Int.	Oct. 28	37.50
Bronze Daisy. Light bronze	July 16	Med.	Int.	Nov. 1	37.50
Bronze Buckingham. Light orange bronze	July 16	Short	Int.	Nov. 3	37.50
*Mason's Bronze. Burnt orange	July 22	Short	Large	Nov. 10	37.50
*Melba. Light reddish bronze	July 22	Short	Large	Nov. 10	37.50
Sylvanna. Bittersweet orange	July 22	Med.	Int.	Nov. 10	80.00
*Apricot Valencia. Deep apricot buff	July 28	Med.	Large	Nov. 30	50.00
*Jane. Light buff bronze. Sport from Valencia	July 28	Med.	Large	Nov. 30	37.50
Mahogany Viking. Mahogany bronze	July 25	Med.	Int.	Dec. 1	80.00
Viking. Deep reddish bronze shading to orange	July 25	Med.	Int.	Dec. 1	37.50

PINK

October Pink. Light lavender	July 16	Med.	Int.	Oct. 28	37.50
W. H. Buckingham. Rose pink	July 16	Short	Int.	Nov. 3	37.50
Hasegawa Pink. Lavender	July 28	Med.	Int.	Nov. 25	37.50
*Valencia. Orchid pink	July 28	Med.	Large	Nov. 30	37.50
*Dark Pink Valencia. Deep orchid pink	July 28	Med.	Large	Nov. 30	37.50
Carillon. Deep orchid pink	Aug. 7	Med.	Int.	Dec. 15	37.50
Rosalind. Rose pink	Aug. 7	Tall	Int.	Dec. 20	37.50

RED

Red Daisy. Deep red	July 19	Med.	Int.	Nov. 5	37.50
Bittersweet. Bittersweet red	July 19	Med.	Int.	Nov. 8	100.00
*Europa. Cardinal red	July 22	Short	Large	Nov. 10	37.50
*Clara Holford. Deep red	July 22	Med.	Large	Nov. 10	37.50
*Mason's Red. Crimson Orange	July 22	Short	Large	Nov. 10	37.50
*Red Melba. Light red	July 22	Short	Large	Nov. 10	37.50
*Red Valencia. Brazil red. Sport from Valencia	July 28	Med.	Large	Nov. 30	37.50
*Carnelia. Bittersweet red	July 28	Short	Large	Nov. 30	37.50
*Crimson Carnelia. Deep Crimson	July 28	Short	Large	Nov. 30	80.00
Sarong. Crimson scarlet	Aug. 4	Med.	Int.	Dec. 15	37.50

* Responds to disbudding.

FOR GARDEN VARIETIES SEE PAGE 20.

Anemone Flowered Varieties

YELLOW

Name and Description	Last Pinch	Height	Size	Matures	Rooted Price Per 1000
*Helios. Deep golden yellow	July 22	Med.	Large	Nov. 10	\$37.50
Sunray. Light lemon yellow	July 22	Med.	Int.	Nov. 15	37.50
*Susanne Miller. Buff yellow. Sport from Norma	July 25	Tall	Large	Nov. 18	37.50
*Yellow Rolinda. Light buff yellow	July 25	Med.	Int.	Nov. 23	37.50
*Citrus Queen. Lemon orange	July 28	Med.	Large	Nov. 25	37.50
*Yellow Supreme. Buff yellow suffused with pink.	Aug. 2	Med.	Large	Dec. 10	37.50
Yellow Garza Supreme. Pale lemon yellow	Aug. 4	Short	Int.	Dec. 15	37.50

WHITE

*Graceland. White with yellow center	July 16	Med.	Int.	Oct. 28	37.50
Blanche	July 16	Med.	Int.	Nov. 1	37.50
*White Anemone	July 19	Tall	Int.	Nov. 5	37.50
*Shasta	July 19	Med.	Int.	Nov. 8	37.50
*Little America	July 19	Med.	Int.	Nov. 10	37.50
*White Freida. White with yellow cushion	July 22	Med.	Large	Nov. 15	37.50
*White Norma. White suffused with pink	July 25	Tall	Large	Nov. 18	37.50
*Nevada. White with chartreuse green cushion	July 28	Med.	Int.	Nov. 20	80.00
*Long Island Beauty. White with yellow cushion	July 25	Med.	Large	Nov. 20	37.50
*White Supreme. White suffused with pink	Aug. 2	Med.	Large	Dec. 10	37.50
Garza Supreme	Aug. 4	Short	Int.	Dec. 15	37.50

BRONZE

*Bronze Freida. Salmon buff with yellow center	July 22	Med.	Large	Nov. 15	37.50
Yolanda. Light orange bronze	July 28	Med.	Int.	Nov. 25	37.50
*Chrome Emerald. Golden orange with gold cushion	July 28	Short	Int.	Dec. 1	37.50
*Bronze Supreme. Light bronze suffused with pink	Aug. 2	Med.	Large	Dec. 10	37.50

PINK

Linda Lou. Lavender	July 19	Med.	Int.	Nov. 8	37.50
Orchid Beauty. Orchid with golden cushion	July 22	Med.	Int.	Nov. 15	37.50
*Freida. Light lavender with yellow cushion	July 22	Med.	Large	Nov. 15	37.50
*Dark Pink Freida. Deep lavender	July 22	Med.	Large	Nov. 15	37.50
*Norma. Orchid pink petals with salmon cushion	July 25	Tall	Int.	Nov. 18	37.50
*Dark Pink Norma. Deep lavender	July 25	Tall	Int.	Nov. 18	37.50
*Beautiful Lady. Deep lavender rays with cream white cushion	July 28	Short	Large	Nov. 25	37.50
*Enchantress. Deep pink with light pink cushion	July 31	Med.	Large	Dec. 5	37.50
*Dark Pink Supreme. Lavender	Aug. 2	Med.	Large	Dec. 10	37.50

RED

*The Titan. Scarlet crimson with bronzy red cushion	July 19	Med.	Large	Nov. 10	37.50
*Red Rolinda. Deep reddish bronze	July 25	Med.	Int.	Nov. 23	37.50
*Crimson Glow. Crimson maroon	July 28	Med.	Int.	Nov. 25	37.50

* Responds to disbudding.

FOR SHADING INFORMATION SEE PAGES 28-32.

Pot Plant Varieties

YELLOW

Name and Description	Last Pinch	Type	Spray or Disbud	Matures	Rooted Price Per 1000
Early Yellow. Light golden yellow	Aug. 24	S. Pom.	Spray	Sept. 15	\$37.50
Pomponette. Light buff yellow	Aug. 24	Int. Pom.	Spray	Sept. 20	37.50
Gold Lode. Golden yellow	Aug. 24	L. F. Dec.	Disbud	Oct. 10	37.50
Rodell Improved. Yellow. Sport from Rodell	Aug. 24	Int. Pom.	Spray	Oct. 20	37.50
Mrs. H. E. Kidder. Bright yellow	Aug. 24	L. F. Inc.	Disbud	Oct. 20	37.50
Cincinnati. Golden yellow	Aug. 24	L. Pom.	Disbud	Oct. 20	37.50
Golden Spray. Deep lemon yellow	Aug. 24	Int. Pom.	Spray	Oct. 23	37.50
Blazing Gold. Deep golden yellow	Aug. 24	L. F. Inc.	Disbud	Oct. 25	37.50
Sunglow. Yellow	Aug. 24	L. F. Inc.	Disbud	Oct. 25	37.50
Golden Glory. Golden yellow	Aug. 24	L. F. Inc.	Disbud	Nov. 1	37.50
Saratoga. Bright golden yellow	Aug. 24	L. F. Inc.	Disbud	Nov. 1	37.50
Cardonia. Deep golden yellow	Aug. 29	L. F. Inc.	Disbud	Nov. 10	37.50
Yellow Beauty. Golden yellow	Aug. 29	L. Pom.	Disbud	Nov. 10	37.50
Sunray. Yellow	Sept. 3	Int. Anem.	Spray	Nov. 15	37.50
Honey Dew. Lemon yellow	Sept. 3	L. F. Inc.	Disbud	Nov. 15	37.50
Yellow Fellow. Deep lemon yellow	Sept. 3	Int. Dec.	Spray	Nov. 15	37.50
Friendly Rival. Large golden yellow	Sept. 3	L. F. Inc.	Disbud	Nov. 20	37.50
Bonnaffon DeLuxe. Golden yellow	Sept. 3	L. F. Inc.	Disbud	Nov. 20	37.50
Marie De Petris. Deep golden yellow	Sept. 3	L. F. Inc.	Disbud	Nov. 23	37.50
Yellow Rolinda. Buff yellow	Sept. 8	Int. Anem.	Spray	Nov. 23	37.50
Sun Gold. Lemon yellow	Sept. 8	L. F. Dec.	Disbud	Nov. 25	37.50

WHITE

White Jewell. White suffused with pink	Aug. 24	S. Pom.	Spray	Oct. 15	37.50
Irene. White	Aug. 24	S. Pom.	Spray	Oct. 18	37.50
Minong. White	Aug. 24	S. Pom.	Spray	Oct. 20	37.50
Christina. White, sport from Rose Chochard	Aug. 24	L. F. Inc.	Disbud	Oct. 20	37.50
Granite State. White	Aug. 24	L. Pom.	Disbud	Oct. 25	100.00
Graceland. White with yellow center	Aug. 24	Int. Anem.	Disbud	Oct. 28	37.50
Snow White	Aug. 24	L. F. Inc.	Disbud	Nov. 1	37.50
Indianapolis White. White	Aug. 29	L. F. Inc.	Disbud	Nov. 8	37.50
Richard Mandel. Pure white	Aug. 29	L. Pom.	Disbud	Nov. 10	37.50
Little America. Pure White	Aug. 29	Int. Anem.	Disbud	Nov. 10	37.50
Marketeer. White	Sept. 3	L. F. Inc.	Disbud	Nov. 18	37.50
Long Island Beauty. White with yellow cushion	Sept. 3	L. Anem.	Disbud	Nov. 20	37.50
White Frick. White suffused with pink	Sept. 3	L. F. Inc.	Disbud	Nov. 25	37.50

BRONZE and RED

Early Bronze. Orange bronze	Aug. 24	S. Pom.	Spray	Sept. 15	37.50
Indianola. Light bronze	Aug. 24	L. F. Inc.	Disbud	Oct. 20	37.50
Thorina. Reddish bronze	Aug. 24	Int. Pom.	Spray	Oct. 20	37.50
Alameda. Reddish bronze with buff reverse	Aug. 29	L. F. Inc.	Disbud	Oct. 25	37.50
Hilda Bergen. Bronze	Aug. 24	L. F. Inc.	Disbud	Oct. 25	37.50
Cambria. Golden bronze	Aug. 24	L. F. Inc.	Disbud	Oct. 25	37.50

Pot Plant Varieties

BRONZE and RED—Continued

Name and Description	Last Pinch	Type	Spray or Disbud	Matures	Rooted Price Per 1000
Glitters. Bright bronze.....	Aug. 29	L.F. Dec.	Disbud	Oct. 28	\$37.50
Apricot Queen. Orange Bronze.....	Aug. 29	L.F. Inc.	Disbud	Nov. 1	37.50
Indianapolis Bronze. Buff bronze.....	Aug. 29	L.F. Inc.	Disbud	Nov. 8	37.50
Clara Holford. Deep red.....	Aug. 29	L. Sing.	Disbud	Nov. 10	37.50
Red Melba. Red.....	Aug. 29	L. Sing.	Disbud	Nov. 10	37.50
Bronze Masterpiece. Apricot bronze.....	Aug. 29	Int. Pom.	Disbud	Nov. 15	37.50
Gypsy. Pale reddish bronze.....	Aug. 29	S. Anem.	Spray	Nov. 15	37.50
Mrs. A. J. Stahelin. Reddish bronze.....	Aug. 29	L.F. Inc.	Disbud	Nov. 15	37.50
Garnet King. Deep, bright red.....	Sept. 3	L.F. Dec.	Disbud	Nov. 18	37.50
Legal Tender. Bronze and Gold.....	Sept. 3	Int. Dec.	Spray	Nov. 20	37.50
Red Rolinda. Deep reddish bronze.....	Sept. 8	Int. Anem.	Spray	Nov. 23	37.50
Bronze Frick. Light bronze.....	Sept. 8	L.F. Inc.	Disbud	Nov. 25	37.50
Harvard. Deep red.....	Sept. 8	L.F. Dec.	Disbud	Nov. 30	37.50

PINK

Early October. Light lavender.....	Aug. 24	L.F. Inc.	Disbud	Oct. 10	80.00
Jewell. Bright rose pink.....	Aug. 24	S. Pom	Spray	Oct. 15	37.50
Justrite. Light rose pink.....	Aug. 24	L.F. Inc.	Disbud	Oct. 15	37.50
Rose Chochard. Light lavender.....	Aug. 24	L.F. Inc.	Disbud	Oct. 20	37.50
Rosabella. Rose pink.....	Aug. 24	L.F. Inc.	Disbud	Oct. 25	37.50
Indianapolis Pink. Deep lavender.....	Aug. 29	L.F. Inc.	Disbud	Nov. 8	37.50
Thyra. Dark pink.....	Aug. 29	L. Pom.	Disbud	Nov. 10	37.50
Queen of Pinks. (Pink Mandel.) Lavender.....	Aug. 29	L. Pom.	Disbud	Nov. 10	37.50
Ethrelda. Light lavender.....	Aug. 29	Int. Anem.	Disbud	Nov. 12	37.50
Masterpiece. Tourmaline pink.....	Aug. 29	Int. Pom.	Disbud	Nov. 15	37.50
Helen Frick. Rose pink.....	Sept. 3	L.F. Inc.	Disbud	Nov. 25	37.50
Beautiful Lady. Deep lavender rays with cream white cushion	Sept. 3	L. Anem.	Disbud	Nov. 25	37.50

Helen Frick

FERMATE

This new organic fungicide has proven of great value to mum growers in controlling Septoria Leaf Spot. Fermate is highly effective against many fungi including damping-off on the propagating benches. Recommended by many Experiment Station investigators.

Fermate is compatible with Arsenate of Lead, Loro and Nicofume combinations.

3 lb. bag \$1.00 per lb.
25 lb. drum .75 per lb.



The Use of Black Cloth Shading to Advance the Flowering Season

The commercial use of applying black cloth to advance the flowering season has been used successfully for the past fifteen years. The biggest change has not been in the application of the cloth but has come about with varieties and their culture. The varieties in the following list lend themselves to black cloth shading. The dates opposite the varieties are those found satisfactory when the given blooming date is desired.

USEFUL HINTS

- 1—Use a good durable **Black Cloth** which when applied will reduce the light intensity to 2 foot candles or less. More light intensity than this will result in delayed flowering and unevenness of bloom.
- 2—Short day treatment matures the plants earlier, therefore it is necessary to have the pompons 12 to 15 inches high and the standards 18 to 24 inches high when the shading treatment is started. When plants are short at the start of the shading period you will have short cut flowers when ready to cut.
- 3—The cloth should be applied at 5 P.M. and removed at 8 A.M. Continue covering each evening on pompons until the latest buds show color and most of the flowers are well developed. For large flowering varieties shading can be discontinued after all flowering buds have attained the diameter of approximately one half inch.
- 4—Be sure that covering is complete on all benches shaded, as any leaks in light will cause uneven spots in the bench at blooming time.
- 5—When shading out of doors or under aster cloth, it has been found that metal clamps similar to those used in battery shops will hold on the black cloth better than clothes pins or safety pins.
- 6—When growing large flowering varieties outdoors give some protection as rain and wind storms play havoc when not protected.
- 7—Best results are obtained when varieties of approximately the same blooming date are used for any one particular shading. When a spread in blooming dates is desired, repeated shading of a few varieties at weekly or ten-day intervals has proven more satisfactory than grouping a large number of varieties into any one shading. The shading dates given are those which have been found to be best for the respective varieties. We recommend benching six weeks prior to shading.
- 8—Continue to give the plants which are being given the short day treatment the same care as those grown normally. We have collected the data on the ideal time to bench and pinch for the respective dates of bloom when shading is started at various dates. This is found in the tables on the following pages.
- 9—Select the first bud on standard varieties that appears after shading is started.
- 10—Black cloth should be applied each evening although missing one night a week will give fair results but delayed flowering results when cloth is not applied each evening.

As an added suggestion, we would recommend the removal of black cloth after night fall to allow for a better circulation of air. This would prevent the accumulation of dampness and the unfavorable results that usually occur therefrom. This of course will cause considerable extra work as the cloth must be replaced before morning. We feel however, that as this will improve the growth and the foliage it will be well worth the effort. Perfection is never obtained without added effort.

Large Flowering Varieties

YELLOW

Pinching Date	Shading Date	Blooming Date
BLAZING GOLD		
May 10	June 19	August 19
May 17	June 26	August 26
May 24	July 3	September 3
May 31	July 10	September 9
June 7	July 17	September 16
GOOD NEWS		
May 14	June 23	August 26
May 21	June 30	September 2
May 28	July 7	September 9
June 4	July 14	September 16
June 11	July 21	September 23
PENROD		
May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30
YELLOW MEFO		
May 23	July 2	September 16
May 30	July 9	September 23
June 6	July 16	September 30
June 13	July 23	October 7
June 20	July 30	October 14
MARIE DE PETRIS		
May 26	July 5	September 23
June 2	July 12	September 30
June 9	July 19	October 7
June 16	July 26	October 14
June 23	Aug. 2	October 21

WHITE

SILVER SHEEN		
May 10	June 19	August 19
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
ALBATROSS		
May 14	June 23	August 26
May 21	June 30	September 2
May 28	July 7	September 9
June 4	July 14	September 16
June 11	July 21	September 23
BETSY ROSS		
May 14	June 23	August 26
May 21	June 30	September 2
May 28	July 7	September 9
June 4	July 14	September 16
June 11	July 21	September 23
INDIANAPOLIS WHITE		
May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30

WHITE

Pinching Date	Shading Date	Blooming Date
MONUMENT		
May 20	June 29	September 9
May 27	June 6	September 16
June 3	July 13	September 23
June 10	July 20	September 30
June 17	July 27	October 7
MEFO		
May 23	July 2	September 16
May 30	July 9	September 23
June 6	July 16	September 30
June 13	July 23	October 7
June 20	July 30	October 14

PINK

PINK CHIEF		
May 13	June 22	August 19
May 20	June 29	August 26
May 27	July 14	September 2
June 3	July 21	September 9
June 10	July 28	September 16
MAJOR BOWES		
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
June 14	July 24	September 23
J. W. PRINCE		
May 14	June 23	August 26
May 21	June 30	September 2
May 28	July 7	September 9
June 4	July 14	September 16
June 11	July 21	September 23

INDIANAPOLIS PINK

May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30

ORCHID QUEEN

May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30
June 21	July 31	October 7
June 28	August 7	October 14

BRONZE

HILDA BERGEN		
May 10	June 19	August 19
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
IVANHOE		
May 14	June 23	August 26
May 21	June 30	September 2
May 28	July 7	September 9
June 4	July 14	September 16
June 11	July 21	September 23

PLANT SEVEN WEEKS BEFORE SHADING DATE.

Gloeckner

Large Flowering Varieties

BRONZE

Pinching Date	Shading Date	Blooming Date
DETROIT NEWS		
May 14	June 23	August 26
May 21	June 30	September 2
May 28	July 7	September 9
June 4	July 14	September 16
June 11	July 21	September 23
INDIANAPOLIS BRONZE		
May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30

RED

Pinching Date	Shading Date	Blooming Date
ANACONDA		
May 20	June 29	September 9
May 27	July 6	September 16
June 3	July 13	September 23
June 10	July 20	September 30
June 17	July 27	October 7
MRS. DAVID ROY		
May 20	June 29	September 9
May 27	July 6	September 16
June 3	July 13	September 23
June 10	July 20	September 30
June 17	July 27	October 7

Pompons, Decorative, Single and Anemone Types

YELLOW

YELLOW IRENE		
May 6	June 15	August 12
May 13	June 22	August 19
May 20	June 29	August 26
May 27	July 6	September 2
June 3	July 13	September 9
YELLOW DOT		
May 10	June 19	
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
GOLDEN HERALD		
May 14	June 23	August 26
May 21	June 30	September 2
May 28	July 7	September 9
June 4	July 14	September 16
June 11	July 21	September 23
YELLOW DAISY		
May 14	June 23	August 26
May 21	June 30	September 2
May 28	July 7	September 9
June 4	July 14	September 16
June 11	July 21	September 23
YELLOW ARCADIA		
May 14	June 23	August 26
May 21	June 30	September 2
May 28	July 7	September 9
June 4	July 14	September 16
June 11	July 21	September 23
BARCAROLE		
May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30
NUGGETS		
May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30

YELLOW

YELLOW BUSHNELL		
May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30
PIXIE		
May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30
YELLOW FELLOW		
May 20	June 29	September 9
May 27	July 6	September 16
June 3	July 13	September 23
June 10	July 20	September 30
June 17	July 27	October 7
SUNRAY		
May 20	June 29	September 9
May 27	July 6	September 16
June 3	July 13	September 23
June 10	July 20	September 30
June 17	July 27	October 7
GOLDEN SURPRISE		
May 23	July 2	September 16
May 30	July 9	September 23
June 6	July 16	September 30
June 13	July 23	October 7
June 20	July 30	October 14
PRINCETON		
May 23	July 2	September 16
May 30	July 9	September 23
June 6	July 16	September 30
June 13	July 23	October 7
June 20	July 30	October 14
GOLDEN JANE		
May 26	July 5	September 23
June 2	July 12	September 30
June 9	July 19	October 7
June 16	July 26	October 14
June 23	August 2	October 21

PLANT SEVEN WEEKS BEFORE SHADING DATE.

*Pompons, Decorative, Single and Anemone Types***WHITE**

Pinching Date	Shading Date	Blooming Date
IRENE		
May 6	June 15	August 12
May 13	June 22	August 19
May 20	June 29	August 26
May 27	July 6	September 2
June 3	July 13	September 9
WHITE JEWELL		
May 6	June 15	August 12
May 13	June 22	August 19
May 20	June 29	August 26
May 27	July 6	September 2
June 3	July 13	September 9
PINOCCHIO		
May 10	June 19	August 19
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
MINONG		
May 10	June 19	August 19
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
SEA GULL		
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
June 14	July 24	September 23
REV. BUSHNELL		
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
June 14	July 24	September 23
VESPER		
May 20	June 29	September 9
May 27	July 6	September 16
June 3	July 13	September 23
June 10	July 20	September 30
June 17	July 27	October 7
LITTLE AMERICA		
May 20	June 29	September 9
May 27	July 6	September 16
June 3	July 13	September 23
June 10	July 20	September 30
June 17	July 27	October 7
MATCHLESS		
May 23	July 2	September 16
May 30	July 9	September 23
June 6	July 16	September 30
June 13	July 23	October 7
June 20	July 30	October 14

WHITE

Pinching Date	Shading Date	Blooming Date
PRISCILLA		
May 23	July 2	September 16
May 30	July 9	September 23
June 6	July 16	September 30
June 13	July 23	October 7
June 20	July 30	October 14
NEVADA		
May 23	July 2	September 16
May 30	July 9	September 23
June 6	July 16	September 30
June 13	July 23	October 7
June 20	July 30	October 14
SEAFOAM		
May 26	July 5	September 23
June 2	July 12	September 30
June 9	July 19	October 7
June 16	July 26	October 14
June 23	Aug 2	October 21
PINK		
PINK PEARL		
May 6	June 15	August 12
May 13	June 22	August 19
May 20	June 29	August 26
May 27	July 6	September 2
June 3	July 13	September 9
JEWELL		
May 6	June 15	August 12
May 13	June 22	August 19
May 20	June 29	August 26
May 27	July 6	September 2
June 3	July 13	September 9
CAPT. COOK		
May 10	June 19	August 19
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
PINK DOT		
May 10	June 19	August 19
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
JESSIE		
May 10	June 19	August 19
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
OCTOBER PINK		
May 14	June 23	August 26
May 21	June 30	September 2
May 28	July 7	September 9
June 4	July 14	September 16
June 11	July 21	September 23

PLANT SEVEN WEEKS BEFORE SHADING DATE.

Pompons, Decorative, Single and Anemone Types

PINK

Pinching Date	Shading Date	Blooming Date
MRS. M. BULKELEY		
May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30
DARK PINK BULKELEY		
May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30
MASTERPIECE		
May 20	June 29	September 9
May 27	July 6	September 16
June 3	July 13	September 23
June 10	July 20	September 30
June 17	July 27	October 7
MINUET		
May 26	July 5	September 23
June 2	July 12	September 30
June 9	July 19	October 7
June 16	July 26	October 14
June 23	Aug. 2	October 21
DARK PINK VALENCIA		
May 26	July 5	September 23
June 2	July 12	September 30
June 9	July 19	October 7
June 16	July 26	October 14
June 23	Aug. 2	October 21

BRONZE & RED

FIREBIRD		
May 10	June 19	August 19
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
ADELAIDE		
May 10	June 19	August 19
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
ROMAN BRONZE		
May 10	June 19	August 19
May 17	June 26	August 26
May 24	July 3	September 2
May 31	July 10	September 9
June 7	July 17	September 16
RED DAISY		
May 14	June 23	August 26
May 21	June 30	September 2
May 28	July 7	September 9
June 4	July 14	September 16
June 11	July 21	September 23

BRONZE & RED

Pinching Date	Shading Date	Blooming Date
NAVAHO		
May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30
ROBINHOOD		
May 17	June 26	September 2
May 24	July 3	September 9
May 31	July 10	September 16
June 7	July 17	September 23
June 14	July 24	September 30
BRONZE MASTERPIECE		
May 20	June 29	September 9
May 27	July 6	September 16
June 3	July 13	September 23
June 10	July 20	September 30
June 17	July 27	October 7
SYLVANNA		
May 20	June 29	September 9
May 27	July 6	September 16
June 3	July 13	September 23
June 10	July 20	September 30
June 17	July 27	October 7
CASSANDRA		
May 20	June 29	September 9
May 27	July 6	September 16
June 3	July 13	September 23
June 10	July 20	September 30
June 17	July 27	October 7
RED PRINCETON		
May 23	July 2	September 16
May 30	July 9	September 23
June 6	July 16	September 30
June 13	July 23	October 7
June 20	July 30	October 14
BITTERSWEET		
May 23	July 2	September 16
May 30	July 9	September 23
June 6	July 16	September 30
June 13	July 23	October 7
June 20	July 30	October 14
BRONZE GOLDSMITH		
May 26	July 5	September 23
June 2	July 12	September 30
June 9	July 19	October 7
June 16	July 26	October 14
June 23	Aug. 2	October 21
APRICOT VALENCIA		
May 26	July 5	September 23
June 2	July 12	September 30
June 9	July 19	October 7
June 16	July 26	October 14
June 23	Aug. 2	October 21

PLANT SEVEN WEEKS BEFORE SHADING DATE.

To Delay Flowering by Use of Artificial Light

It has usually been considered that lighting pompons greatly reduces the number of flowers per spray. Experiments conducted at the United States Department of Agriculture shows that this occurs if light is applied at or soon after the time of bud formation. When light treatments were started at least 2 weeks before bud formation and applied in the form of nightly interruptions, no supplementary light being used while the buds developed, blooming could be delayed without seriously reducing flower count.

Experience will prove the best guide in applying methods to extend the flowering season. The choice of varieties, season of bloom and light treatment, must be made by the individual grower. If the blooming season is to be extended for only several weeks, then the light exposure period per night can be short, not to exceed 60 minutes of light from 40- to 60- watt lamps. If the blooming season is to be extended further, a longer period of light, but not more than 3 hours nightly, should be used. To be most effective, this light should be applied at or near the middle of the night.

USEFUL HINTS

- 1—Select vigorous growing, midseason to late-flowering varieties for delayed flowering, such as the Indianapolis varieties, Marketeer, Orchid Queen, Whittier, Cordova and Valencia and its sports.
- 2—Planting date may be several weeks later than when no lights are used. Plant two plants per hill, pinch pompons once and grow three stems per plant.
- 3—Light with 40- to 60- watt lamps using suitable reflectors hung at four-foot intervals over the bench. Too low a light intensity will not retard bud development.
- 4—Start lights at least 2 weeks before buds are normally visible for the variety, usually not later than August 10th. Starting after this date may cause malformed flowers and long necks.
- 5—Use lights EVERY NIGHT at or near midnight, for one hour, when blooming is to be delayed several weeks. Use lights three hours for delaying longer periods.
- 6—Pinch pompons and disbuds the last time 30 days before the light treatment is discontinued. This will prevent varieties from getting too leggy.
- 7—Night temperatures should be 55 degrees with day temperatures from 10 to 15 degrees higher. Cooler night temperatures will induce blindness.
- 8—Discontinue lights according to the blooming time desired. For varieties normally blooming before November 15, allow 9 weeks after the lights are stopped until blooming; for varieties blooming after November 15 allow 10 to 11 weeks; and for those blooming in December, 11 to 12 weeks.
- 9—Be careful that the light from the bench treated does not light a bench nearby that is not treated. This will cause part of the bench not under treatment to be delayed in flowering and consequently upset growing plans for bench not under treatment.
- 10—Standards, Disbuds, Pot-Plants, and Pompons respond alike to this delayed flowering treatment.

Chrysanthemum Pot Plant Culture

Well grown short pot plants of Chrysanthemums have been finding a ready market in various sections of the country. We feel that many growers have been neglecting this valuable Fall potted plant. In many cases, poor attempts have been made in growing this plant and we offer the following suggestions for your consideration:

VARIETIES—The varieties best suited to pot culture are those which lateral freely and have a medium to low growing habit. A variety whose laterals tend to spread is superior to one with a more upright growth. Good examples are: Bonnaffon De Luxe and Queen of Pinks.

PLANTING—Cuttings may be planted into 2½" pots in May and later shifted into the larger pot for finishing. If this is done care must be used so as not to get the plants hardened too much before shifting. A more efficient and easier way is to set the large pots on the bench, fill them with potting soil and plant the cuttings directly into the finishing pots.

Three Cuttings should be planted in a six inch pot. While four may be required for a large pot.

WATERING AND HUMIDITY—After planting water thoroughly to set the soil around the plant roots. Repeat this type of watering when the soil gets on the dry side. Organic matter in the soil will facilitate watering and will tend to avoid extreme fluctuations in moisture supply. Keep humidity in house by wetting down bench and walks.

PINCHING—Three pinches are sufficient for a good short compact pot plant. The first pinch should be approximately 15 days after planting. The second pinch about 30 days after planting and the third and last pinch as listed on the chart. Some of the varieties listed grow taller than others, however by observing the last pinching date all the varieties listed should finish reasonably uniform in height.

FERTILIZING—The best program is to have regular soil tests and feed as need is indicated by these tests. In absence of these facilities, and starting with a relatively fertile potting soil, several light feedings should be made with a complete fertilizer such as Electra. This can safely be used at the rate of 1 Teaspoonful per 6" pot. This should be applied when soil is moist and never on a dry soil.

The foliage should retain a bright green lustre throughout the life of the plant, and the lower leaves should never be allowed to lose their color and turn to a light green due to low fertility. A strong well grown pot plant is a well fed plant.

DISEASES AND INSECTS—Pot plants should be sprayed regularly with one of the rotenone insecticides for control of red spider. Pyrethum sprays or tartar emetic will control thrip and leaf tyer. If plants are to be grown outdoors before final potting the foliage should be kept covered with a spray such as Bordeaux Mixture or Fermate to prevent leaf spot. If this is not done considerable foliage loss may result during wet cool weather.

SHADING—Same procedure as for cut flowers. Black cloth should be new or in best of condition for very early shadings to avoid delayed and uneven blooming. When possible take cloth off at night, replacing before daylight.

DISBUDDING POMPONS—Remove center bud except on the button types. This gives better spacing to the remaining flowers. Also the center bud generally matures earlier than the surrounding buds, giving the appearance of irregular blooming and premature aging. Remove this bud as early as convenient.

DISBUDDING STANDARDS—Disbudding must be done early, late disbudding results in small flowers and weak and elongated stems directly below the flowers.

HEIGHT—By following our directions pompons grown in 5½" or 6" pots will be 11" to 13" high. Disbuds will grow 14" to 17" above the top of the pot.

Pot Plant Culture Continuous Blooming Schedule

YELLOW

Planting Date	Shading Date	Blooming Date
GOLD LODE		
May 15	July 1	August 28
June 1	July 15	September 11
June 15	August 1	September 28
July 1	None	October 10
BLAZING GOLD		
May 15	July 1	September 1
June 1	July 15	September 15
June 15	August 1	October 1
July 1	None	October 25
GOLDEN GLORY		
May 15	July 1	September 3
June 1	July 15	September 17
June 15	August 1	October 3
July 1	None	November 1
CARDONIA		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10
YELLOW BEAUTY		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10
BONNAFFON DE LUXE		
May 15	July 1	September 15
June 1	July 15	September 29
June 15	August 1	October 15
July 1	None	November 20
SUN GOLD		
May 15	July 1	September 19
June 1	July 15	October 3
June 15	August 1	October 20
July 1	None	November 25

WHITE

CHRISTINA		
May 15	July 1	September 1
June 1	July 15	September 15
June 15	August 1	October 1
July 1	None	October 20
RICHARD MANDEL		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10
LITTLE AMERICAN		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10
MARKETEER		
May 15	July 1	September 14
June 1	July 15	September 28
June 15	August 1	October 14
July 1	None	November 18

BRONZE

Planting Date	Shading Date	Blooming Date
HILDA BERGEN		
May 15	July 1	September 1
June 1	July 15	September 15
June 15	August 1	October 1
July 1	None	October 25
ALAMEDA		
May 15	July 1	September 1
June 1	July 15	September 15
June 15	August 1	October 1
July 1	None	October 25
GLITTERS		
May 15	July 1	September 1
June 1	July 15	September 16
June 15	August 1	October 2
July 1	None	October 28
APRICOT QUEEN		
May 15	July 1	September 3
June 1	July 15	September 17
June 15	August 1	October 3
July 1	None	November 1
GYPSY		
May 15	July 1	September 11
June 1	July 15	September 25
June 15	August 1	October 12
July 1	None	November 15
BRONZE FRICK		
May 15	July 1	September 19
June 1	July 15	October 3
June 15	August 1	October 20
July 1	None	November 25

PINK

EARLY OCTOBER		
May 15	July 1	August 28
June 1	July 15	September 11
June 15	August 1	September 28
July 1	None	October 10
ROSABELLA		
May 15	July 1	September 1
June 1	July 15	September 15
June 15	August 1	October 1
July 1	None	October 25
THYRA		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10
QUEEN OF PINKS		
May 15	July 1	September 7
June 1	July 15	September 21
June 15	August 1	October 8
July 1	None	November 10
HELEN FRICK		
May 15	July 1	September 19
June 1	July 15	October 3
June 15	August 1	October 20
July 1	None	November 25

DATE OF LAST PINCH IS THE SAME AS SHADING DATE.

Complete Cloth House Construction

Measure out a perfect rectangle on the ground, each side of the rectangle being 33 feet, or if larger, some multiple of 33 feet. Posts to be placed in the ground three feet deep, to carry the wires at positions that will line the wires in 16½ foot centers, in every direction.

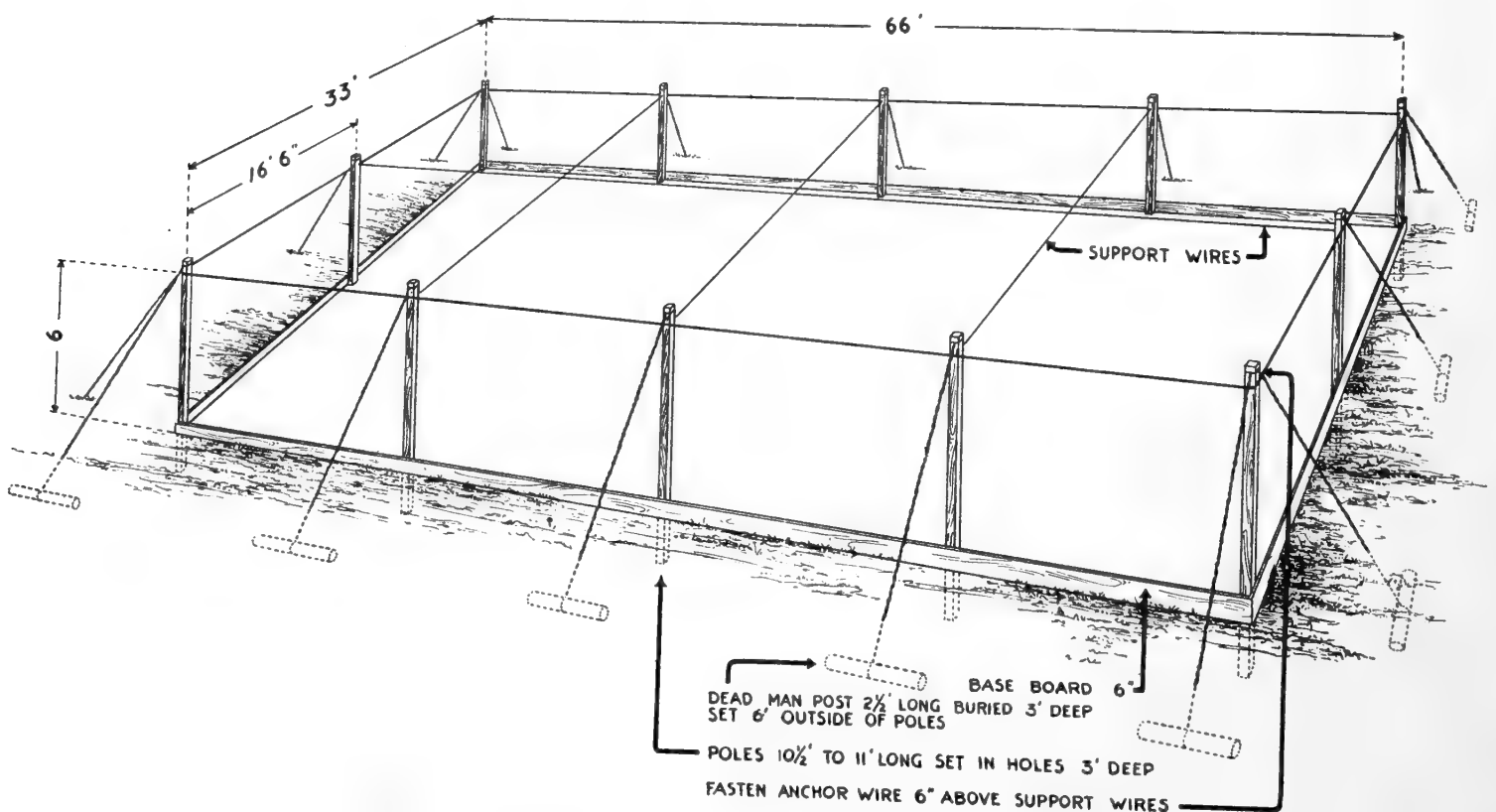
Each outside post must be anchored rigidly with a dead man, and each corner post must have two dead men. Nail the 6-inch baseboard in position around the outside of the house. Place two 1½ inch staples six feet above the ground on each post so the No. 8 galvanized wires will pull through easily and use wire stretchers to stretch the wires taut.

To cover the top unroll the cloth at one end of the frame and with several men lift it across the support wires, unfold a few yards lengthwise beside the frame, then take the selvage edge of the house top and the selvage edge of the sidewall and roll them together five times around the side wire, where you have surplus cloth on the ends wrap this around the wires and sew it. Pin the cloth in place with 8 penny wire nails, pin 10 or 15 feet before you begin to sew, stretch the cloth only enough to keep the sagging out and be sure to keep the lengthwise reinforcement woven lines at an even distance parallel with the length of the wire.

Start at the post and sew by whipping around the wire using a tight lock stitch, so that the cloth will not slip. After this side is finished unfold the cloth to the other 33 feet side support wire and pin before sewing, making sure that the woven reinforced lines are at an even parallel distance from the support wire, sew ends with the same method. Only sew the cloth to support wires, fasten the sidewalls to the baseboard with the new aluminum fasteners every 9 inches.

A very good idea to prevent the cloth from chafing and wearing out the yarns is to cover the rough joints of the baseboard and also wrap the posts with either heavy paper or old cloth. Painting the cloth with **Cuprinol** at the baseboard and at the posts will prolong the life of the cloth.

The beds are laid out lengthwise in the house. The width of the beds may be made any width. It has been found that 5 beds 56 inches wide or 6 beds 44 inches wide are the easiest managed in a 33-foot house. It is best to put a 6-inch board around the border of each bed. The board will keep the water from running into the walks and makes for easier management of the house.



Quan.	Variety	Price	Amt.	Quan.	Variety	Price	Amt.	Quan.	Variety	Price	Amt.
	Marketeer	37.50			Prosperity	37.50			The Titan	37.50	
	Mary L. Hall	37.50			Quaker Maid	37.50			Thorina	37.50	
	Mason's Bronze	37.50			Queen of Pinks	37.50			Thyra	37.50	
	Mason's Red	37.50			Red Daisy	37.50			Trianon	80.00	
	Masterpiece	37.50			Red Melba	37.50			Usona	37.50	
	Matchless	100.00			Red Princeton	37.50			Uvalda	37.50	
	Mefo	37.50			Red Rolinda	37.50			Valencia	37.50	
	Melba	37.50			Red Valencia	37.50			Vesper	50.00	
	Meteore	80.00			Red Velvet	80.00			Vibrant	37.50	
	Minong	37.50			Reliance	80.00			Viking	37.50	
	Minuet	80.00			Revelation	50.00			Wh. Anemone	37.50	
	Mohawk Chief	37.50			Rev. Bushnell	37.50			W. H. Buckingham	37.50	
	Monument	37.50			Richard Mandel	37.50			Wh. Doty	37.50	
	Morning Glow	100.00			Riviera	50.00			Wh. Freida	37.50	
	Morning Star	100.00			Robin Hood	37.50			Wh. Frick	37.50	
	Mrs. Bulkeley	37.50			Rodell Imp.	37.50			Wh. Jewell	37.50	
	Mrs. Du Pont	60.00			Roman Bronze	37.50			Wh. Mensa	37.50	
	Mrs. Hooker	37.50			Rosabella	37.50			Wh. Mistletoe	37.50	
	Mrs. Kidder	37.50			Rosalind	37.50			Wh. Norma	37.50	
	Mrs. Roy	37.50			Rose Charm	37.50			Wh. Supreme	37.50	
	Mrs. Stahelin	37.50			Rose Chochoard	37.50			Wh. Yuletide	37.50	
	Nancy Crain	80.00			Rose Glow	37.50			Whittier	37.50	
	Natoma	37.50			Rosy Morn	80.00			Wildfire	37.50	
	Navaho	50.00			Royal Crimson	37.50			Wm. Turner	37.50	
	Nevada	80.00			Royal Queen	37.50			Winterset	37.50	
	New York	37.50			Ruby Pompon	80.00			Wolverine	37.50	
	Norma	37.50			Rusticon	100.00			Yel. Ambassador	37.50	
	Normandie	37.50			Ruth Cumming	37.50			Yel. Arcadia	37.50	
	Nuggets	37.50			Saratoga	37.50			Yel. Beauty	37.50	
	Oak Leaf	37.50			Sarong	37.50			Yel. Bushnell	37.50	
	Oct. Bronze	37.50			Seafoam	50.00			Yel. Cameo	100.00	
	Oct. Pink	37.50			Sea Gull	37.50			Yel. Cordova	37.50	
	Oct. Rose	37.50			Shasta	37.50			Yel. Daisy	37.50	
	Orchid Beauty	37.50			Silver Ball	37.50			Yel. Dot	37.50	
	Orchid Queen	37.50			Silver Moon	37.50			Yel. Doty	37.50	
	Pearl	37.50			Silver Sheen	37.50			Yel. Fellow	37.50	
	Penrod	37.50			Silver Star	37.50			Yel. Garza	37.50	
	Peter John	37.50			Sm. Early White	37.50			Yel. Hammer	37.50	
	Pink Chief	37.50			Sm. Late White	37.50			Yel. Irene	37.50	
	Pink Dot	37.50			Snow	37.50			Yel. Mefo	37.50	
	Pink Mistletoe	37.50			Snow White	37.50			Yel. Monument	37.50	
	Pink Pearl	37.50			Spun Gold	37.50			Yel. New York	37.50	
	Pk. Treasure Is.	37.50			Sunglow	37.50			Yel. Rolinda	37.50	
	Pink Turner	37.50			Sun Gold	37.50			Yel. Sea Gull	37.50	
	Pinocchio	100.00			Sunnyside	50.00			Yel. Snow	37.50	
	Pixie	50.00			Sunray	37.50			Yel. Supreme	37.50	
	Pom. Dec. Glory	37.50			Susanne Miller	37.50			Yel. Turner	37.50	
	Pomponette	37.50			Sylvanna	80.00			Yolanda	37.50	
	Princeton	37.50			Symphony	37.50			Yukon	37.50	
	Priscilla	80.00			Thanks. Pink	37.50					

Price of Unrooted Cuttings \$10.00 less than listed above.

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15 East 26th Street,
New York 10, N. Y.

Date of Order

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☐ Rooted ☐ Unrooted

When
Req'd

No. 1201

Ship Via:

Quan.	Variety	Price	Amt.	Quan.	Variety	Price	Amt.	Quan.	Variety	Price	Amt.
.....	Adelaide	37.50	Cincinnati	37.50	Golden Mrs. Ross	37.50
.....	Alameda	37.50	Citronella	37.50	Golden October	37.50
.....	Albatross	37.50	Citrus Queen	37.50	Golden Pearson	37.50
.....	Allegro	100.00	Clara Holford	37.50	Golden Spray	37.50
.....	Ambassador	37.50	Clara Jameson	37.50	Golden Surprise	50.00
.....	Anaconda	50.00	Cocquette	80.00	Good News	37.50
.....	Apricot	37.50	Cordova	37.50	Graceland	37.50
.....	Apricot Queen	37.50	Crimson Carnelia	80.00	Granite State	100.00
.....	Apricot Valencia	50.00	Crimson Glow	37.50	Gypsy	37.50
.....	Arcadia	37.50	Crystal Jewell	37.50	Harvard	37.50
.....	Argo	80.00	Dk. Pk. Bulkeley	37.50	Harvester	100.00
.....	Aristocrat	100.00	Dk. Pk. Freida	37.50	Has. Gold	37.50
.....	Avalanche	60.00	Dk. Pk. Jewell	37.50	Has. Pink	37.50
.....	Aviator	100.00	Dk. Pk. Norma	37.50	Helen Frick	37.50
.....	Barbara Cumming	37.50	Dk. Pk. Supreme	37.50	Helios	37.50
.....	Barcarole	100.00	Dk. Pk. Valencia	37.50	Hilda Bergen	37.50
.....	Beautiful Lady	37.50	Dec. Glory—Large	37.50	Honey Dew	37.50
.....	Betsy Ross	37.50	Dec. Gold	37.50	Imp. Dec. Beauty	37.50
.....	Bittersweet	100.00	Dec. White	80.00	Imp. Tobin's Yel.	37.50
.....	Blanche	37.50	Derigold	37.50	Imp. Yel. Chatt.	37.50
.....	Blazing Gold	37.50	Detroit News	37.50	Ind. Bronze	37.50
.....	Bonnaffon Deluxe	37.50	Dorothy Turner	37.50	Ind. Pink	37.50
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.....	Br. Bulkeley	37.50	Early October	80.00	Indianola	37.50
.....	Br. Daisy	37.50	Early Wonder	37.50	Indian Summer	37.50
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.....	Br. Frick	37.50	Ed. Seidewitz	37.50	Ivanhoe	100.00
.....	Br. Goldsmith	80.00	Eliz. Peterson	37.50	Ivory Snow	80.00
.....	Br. Masterpiece	37.50	Enchantress	37.50	Jane	37.50
.....	Br. Mistletoe	37.50	Ethrelda	37.50	Jean Cumming	37.50
.....	Br. Orchid Queen	37.50	Europa	37.50	Jean Treadway	37.50
.....	Br. Supreme	37.50	Fez	37.50	Jemima	37.50
.....	Burgundy	37.50	Fire Bird	37.50	Jessie	37.50
.....	Caliph	37.50	Freida	37.50	Jewell	37.50
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.....	Carillon	37.50	Glitters	37.50	Lavender Lady	60.00
.....	Carnelia	37.50	Glow	37.50	Legal Tender	37.50
.....	Cassandra	50.00	Gold Coin	37.50	Lillian Doty	37.50
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.....	Christmas Gold	37.50	Golden Mistletoe	37.50	Margaret Moeller	100.00
.....	Chrome Emerald	37.50	Golden Modena	37.50	Marie Depetris	37.50

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Incorporated

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New York 10, N. Y.





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NOVELTY CHRYSANTHEMUMS

Novelty Chrysanthemums

NEW VARIETIES OF A FEW YEARS AGO. DON'T FAIL TO ADD THESE TO YOUR LIST.

BARCAROLE

An intense golden yellow pompon that blooms normally November 5. The habit of growth is outstanding vigorous. It is of extremely easy culture and its good foliage and high production make it a good variety.

Above Varieties \$100.00 per 1000.

ARGO

A medium sized pompon with good rounded form and excellent substance for Thanksgiving and early December. The color is a beautiful bronzy orange, shading to rust.

ARISTOCRAT

A deep orchid pink standard with excellent substance for Thanksgiving. The blooms are produced on stiff stems. A much needed standard for that season.

Above Varieties \$80.00 per 1000.

CASSANDRA

A bright orange bronze pompon that is a distinct advance in color for its season of November 10. It has fully rounded form and good substance. Cassandra has proven an excellent variety for cloth house shade.

NAVAHO

A medium-sized deep crimson, decorative pompon which changes to a reddish bronze under early shading. It responds well to black cloth and fills a great need for a cloth house variety in its color range.

Above Varieties \$50.00 per 1000.

BITTERSWEET

A beautiful medium-sized red daisy that blooms November 8. It retains its brilliance with full maturity. The flower has from 3 to 4 rows of stiff, broad petals that lay perfectly flat.

MINUET

Minuet provides a pink pompon for Thanksgiving that is so superior to existing late November pink pompons that it should become the leading variety for that season.

SYLVANNA

A high quality single that matures November 10. The color, a brilliant orange bronze holds well with full maturity, allowing an excellent period for marketing.

PIXIE

A small, well-rounded pompon somewhat larger than Nuggets. The color improves that variety in that it is much brighter and therefore more attractive. It is a remarkably good shipper. It responds beautifully to cloth house practice. It blooms normally November 10.

SEAFOAM

A white, medium sized pompon with a full center and well-rounded form, that blooms November 20. The flower resembles Bushnell. It responds satisfactorily to cloth house practices when grouped with the later varieties.

New Garden Varieties

AVIATOR

A rich coppery red pompon maturing October 10. A vigorous and easy grower.

ALLEGRO

A glowing shrimp-pink suffused with coppery salmon pompon. One of the finest varieties for cutting, maturing October 15.

MORNING STAR

Extremely early flowering cream yellow, blooming from September until killing frost. A dwarf vigorous grower.

MORNING GLOW

A lovely early flowering lavender for mauve-pink. A most desirable color for September.

Above Varieties \$100.00 per 1000.



Gloeckner
Chrysanthemum
Manual